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THE JOURNAL

OF THE

American Medical Association

Annual Subscription, $5.00 | PUBLISHED WEEKLY | Single Copies, 20 Cents

VOLUME 82, No. 21 | 535 North Dearborn Street, CHICAGO, ILL. | MAY 24, 1924

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Entered as Second-Class Matter, June 25, 1895, at the Postoffice at Chicago, Ill., under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized on June 14, 1918. If undeliverable, return postage is guaranteed

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 82, NO. 21 CHICAGO, ILLINOIS MAY 24, 1924

CERVICAL SYMPATHECTOMY FOR ANGINA PECTORIS

REPORT OF CASE

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CHICAGO

The pioneer and most enthusiastic student of the operation of resection of the cervical sympathetic ganglions is Prof. Thomas Jonnesco of Bucharest. Since 1896, Jonnesco [1] has resected the sympathetic nerve and, usually, the first thoracic ganglions on both sides in 200 patients.

In 1896, Jaboulay introduced an operation on the sympathetic ganglions for exophthalmic goiter.

In an earlier communication, Jonnesco [2] reported having done the operation in forty-three cases of epilepsy, one case of epilepsy and chorea, one case of epilepsy and exophthalmic goiter, and eight cases of exophthalmic goiter and glaucoma. To illustrate further the diversity of the supposed usefulness of the operation may be mentioned Jaboulay's [3] recommendations of the operation for trifacial neuralgia, in 1899. In this connection, the work of Pleth [4] is of interest. The latter has used the operation also in cases of persistent tinnitus aurium.

In epilepsy, the operation was thought to be indicated because it was supposed to cause a cerebral congestion instead of a cerebral anemia. In glaucoma, it was thought to lower the pressure in the arteries and cause a diminution of existing extravasation. It destroys the excitosecretory fibers, thus lessening the aqueous humor; it destroys the iris fibers, producing contraction of the pupil; the iris angle and the secretory canals are relieved, and the aqueous humor afforded a ready exit; finally, the destruction of the fibers supplying the smooth peribulbar muscular apparatus causes relaxation of these muscles, removes pressure from the emissary veins, and thus restores the venous circulation.

Brawn [5] declares that the resection of the cervical sympathetic ganglions has not been demonstrated to have been of value in the treatment of epilepsy. Winter,[6] however, compiled 213 cases of sympathetic ganglion resection for epilepsy. Of this number, ninety-six patients had been operated on by Jonnesco. Of the 213 patients, 6.6 per cent. were reported cured. Winter contrasts this with 8,000 patients treated at sanatoriums in which the incidence of cure was given as 1.7 per cent.

Jonnesco [2] believes that the results are excellent in glaucoma when atrophy has not occurred.

Brüning [7] believes that extirpation of the cervical sympathetic ganglions has had no good results in epilepsy, glaucoma and exophthalmic goiter. He feels, however, that the operation is indicated in angiospastic conditions and especially in angina pectoris. Jonnesco [8] regards angina as a manifestation of irritation of the cardio-aortic plexus; in fact, a neuralgia of it. Gilbert, Garmer and Vaquez approve this theory. Franck [9] established relations between the irritation of the cardio-aortic plexus and the more or less distant manifestations seen in angina pectoris. He suggested resection of the cervicothoracic sympathetic ganglions for the relief of angina pectoris, but did not do the operation.

Balacescu [10] notes that the accelerating fibers of the heart which are in the sympathicus arise from the lower part of the cervical cord, and especially from the upper part of the dorsal cord, and enter the three cervical and the first dorsal ganglions, from which, as the cardiac nerves, they enter the plexus cardiacus-aorticus. He notes fibers from all three ganglions making their way to the heart.

INNERVATION

Of aid in understanding the innervation of the heart is the account of Ranson.[11] The innervation of all viscera (including the heart) is of the afferent and the efferent varieties. In the heart afferent innervation, the cells of origin are in the cerebrospinal ganglions. The fibers run through the sympathetic nervous system, passing through the ganglions and plexuses, without interruption, to end in the viscera. Fibers are found in the ninth and the tenth cranial nerves and in the spinal nerves. Their function is to convey to the central nervous system impulses giving rise to vague sensations and other impulses which, never rising into consciousness, give rise to visceral reflexes.

The paths for efferent innervation of the heart are classified (after Ranson) as follows:

1. *Cardio-inhibitory—the cardiac craniosacral pathway.*

1. Jonnesco, Thomas: Presse méd. **31**: 517 (June 9) 1923; abstr. J. A. M. A. **81**: 510 (Aug. 11) 1923.
2. Jonnesco, Thomas, abstr. by Fowler, R. S.: Ann. Surg., 1897, p. 513.
3. Jaboulay, cited by Sellleau, Pierre; and Schwartz, A. (Footnote 18).
4. Pleth, V.: Am. J. Surg. **36**: 300 (Dec.) 1922.
5. Brawn, H.: Arch. f. klin. Chir. **64**: 715, 1901.
6. Winter, G. J.: Arch. f. klin. Chir. **67**: 816, 1902.
7. Brüning, F.: Med. Klin. **19**: 671 (May 20) 1923; abstr. J. A. M. A. **81**: 514 (Aug. 11) 1923.
8. Jonnesco, cited by Coffey, W. B., and Brown, P. K.: The Surgical Treatment of Angina Pectoris, Arch. Int. Med. **31**: 200 (Feb.) 1923.
9. Franck, F., cited by Coffey, W. B., and Brown, P. K.: Bull. de l'Acad. de méd., May 30, 1899.
10. Balacescu, J.: Arch. f. klin. Chir. **67**: 59, 1902.
11. Ranson, S. W.: J. Comp. Neurol. **29**: 305 (Feb.-Oct.) 1918.

(*a*) Preganglionic neurons. Cells in the dorsal motor nucleus of the vagus, fibers through the vagus nerve to the intrinsic ganglions of the heart in which they end.

(*b*) Postganglionic neurons. Cells in the intrinsic cardiac ganglions, fibers in the cardiac muscle.

2. *Cardio-accelerating—the cardiac thoracic lumbar pathway.*

(*a*) Preganglionic neurons. Cells in the intermediolateral column of the spinal cord, fibers by way of the upper white rami and the sympathetic trunk to the superior middle and inferior cervical ganglions.

(*b*) Postganglionic neurons, cells in the cervical ganglions of the sympathetic trunk, fibers by way of the corresponding cardiac nerves to the musculature of the heart.

The recent work of Shawe [12] has added considerable knowledge to this subject. He has dissected twenty-five bodies with great care, and examined them for communication between the vagus and the inferior cervical ganglion. He found the communication in 68 per cent. of the specimens investigated, which percentage is possibly less than it should be, in view of the fact that many of the dissections were done on cadavers that had previously been worked on by medical students. He found that the relations of the vagus and the cervical sympathetic ganglions were different on the two sides of the body, and that the fibers from these cervical ganglions pass into the recurrent laryngeal nerve. All of the specimens were further subjected to careful histologic study. Shawe makes this comment from the clinical side:

Fig. 1.—Skin incision at anterior border of sternocleidomastoid muscle.

It would appear that the importance of these vagosympathetic fibers depends upon their two main spheres of distribution: (1) To the cardio-aortic region, and (2) to the thyroid gland. In the former association they mediate, at least in some cases, as shown by the success of Jonnesco's operation, the critical nervous impulses of angina pectoris, transmitting the afferent stimuli from the heart and aorta, and very probably transmitting efferent stimuli to that region. These nerves form a concentration point for the sympathetic aortic fibers from the upper dorsal segments, and as such present a readily accessible isthmus at which to attack the vicious cycle of irritation by surgical methods.

In the editorial comment [13] on Shawe's paper, it is remarked that we are helped toward an explanation of why Jonnesco's operation of removing the cervical sympathetic ganglions in the neck relieves the pain of angina pectoris:

He has discovered that in the sympathetic twigs which join the vagi and recurrent laryngeal nerves at the junction of neck and thorax there are medullated nerve fibers of various sizes. The fibers of large size he has followed to the cardiac and aortic plexuses, and rightly infers that they must serve as channels for afferent or sensory impulses concerned in the reflex control of the heart. If we suppose that these lower cervical sympathetic twigs are the pathways by which abnormal impulses reach upper dorsal centers of the cord and there give rise to anginal radiations, then we have a satisfactory explanation of the rationale of Jonnesco's operation.

Therefore, it seems to be well established that the cervical ganglions are included in, and are a part of, the pathway of the acceleration fibers to the heart. These ganglions also contain other important nerve pathways. For instance.[14]

The superior cervical ganglion which forms the cephalic end of the sympathetic trunk has a greater variety of connections than any other ganglion in the body. Its branches run to three cranial nerves, three spinal nerves, several arteries, the carotid glomus, the thyroid, salivary and lacrimal glands, smooth muscle of specialized function like that of the eye, the glands and blood vessels of the mucous membrane of the head, the glands and blood vessels of the skin and the smooth muscle of the hair follicles.

STEPS OF OPERATION (JONNESCO)

The total resection of the cervicothoracic ganglions may be carried out by the method described by Jonnesco.[15] He employs "rachianesthesia" (spinal) with stovain. He divides the operation into eight parts:

1. *The Incision.*—This is along the posterior border of the sternocleidomastoid muscle, from the posterior edge of the mastoid to the clavicle. The incision is deepened through the skin, the platysma, the external jugular vein between two ligatures, and the branches of the superficial cervical plexus.

2. *The Disengagement of the Posterior Border of the Sternomastoid.*—The posterior edge is split, parallel to the muscle fibers, and the muscle itself is partially incised.

3. *Isolation of the Vasculonervous Bundle.*—The wound in the sternomastoid is enlarged lengthwise with the index fingers. By this method, the space between the vasculonervous bundle (common carotid artery, internal jugular vein and vagus nerve) and the vertebral plane is entered. A special retractor is applied to the anterior border of the wound. This retractor draws anteriorly the vasculonervous bundle, the sternomastoid muscle and the skin.

4. *The Isolation of the Sympathetic Trunk.*—In general, after the maneuvers described in Step 3, the sympathetic trunk rests on the vertebral plane, enclosed in its flimsy, transparent sheath and resting on the deep aponeurosis of the neck. Care must be taken that the sympathetic trunk is not under the retractor. The

12. Shawe, R. C.: Lancet **1**: 640 (March 29) 1924.
13. Lancet **1**: 660 (March 29) 1924.
14. Ranson, S. W., and Billings, P. R.: J. Comp. Neurol. **29**: 367, 1918.
15. Jonnesco, Thomas: Presse méd. **30**: 353 (April 26) 1922.

phrenic nerve, which is farther out than the sympathetic, should be avoided.

In case of doubt, search is made for the superior cervical ganglion following the vertebral plane. After this ganglion is located, the strand running from the inferior extremity of this ganglion is found.

A guide in the lower angle of the wound is the anterior tubercle of the transverse process of the sixth cervical vertebra (tubercle of Chassaignac). Inside this is the bifurcation of the inferior artery, and in front of or behind this is the sympathetic trunk, which sometimes encloses the artery.

5. *Separation, Isolation and Resection of the Superior Cervical Ganglion.*—The ganglion and its rami are excised.

6. *Freeing of the Inferior Thyroid Artery.*—This is done to help the removal of the middle cervical ganglion.

7. *Disengagement and Resection of the Cervicothoracic Ganglionic Body.*—Jonnesco gives in detail, in this step, an account of the removal of the middle and inferior cervical sympathetic ganglions.

8. *Suture of the Wound.*—The wound is without drainage and without deep sutures.

In Jonnesco's hands, the operation takes from fifteen to thirty minutes, and he emphasizes the importance of having a skilled assistant.

Fig. 2.—Method of removing cervical sympathetic ganglions. The sternocleidomastoid muscle and carotid sheath are retracted posteriorly.

METHODS OF PROCEDURE

The procedure that seemed to be the one of choice was that employed by one of us (A. E. H.) in the performance of the operations for glaucoma.[16]

In this method, the incision is made at the anterior border of the sternocleidomastoid muscle (Fig. 1). This muscle and the carotid sheath and its contents are retracted posteriorly instead of anteriorly, as in Jonnesco's operation (Fig. 2). The remainder of the operation is along the lines laid down by Jonnesco.

Other surgeons have modified somewhat the foregoing technic. C. H. Mayo[17] makes his incision opposite the bifurcation of the carotid. The posterior sheath of the fascia, enclosing the jugular and carotid, is opened "that the vagus nerve may be kept under observation, since this nerve is bulbous above this point and might be confused with the sympathetic." In our present knowledge, the best way of preventing the interference with the vagus is not to open the carotid sheath at all.

Selileau and Schwartz[18] make their cutaneous incisions along the anterior border of the sternocleidomastoid muscle. The sheath of this muscle is opened at its anterior border, and the muscle retracted backward. This procedure will put traction on the spinal accessory nerve and aid in its identification. Further approach to the ganglion is expediated by separating the fibers of the posterior layer of the sheath of the sternocleidomastoid muscle. These writers call attention to the fact that the direction, length and topographic anatomy of the spinal accessory nerve is not the same in all persons. The shorter it is, the more oblique its course.

Pleth[4] recommends the Crile screw clamp on the common or external carotid to secure a bloodless field. This, however, seems unnecessary. His preoperative medication is atropin. Others give no preoperative medication, and avoid atropin in particular, as observance of pupillary reaction when the ganglion is manipulated is an aid to the identification of the ganglion. He cautions against traction on the vagus, as this will slow the pulse. If there has been operative ovulation of the vagus, with consequent slowing of the pulse, the application of 2 per cent. cocain to the nerve will block it and restore the râle.

Mere cutting through the cervical sympathetic ganglions only cuts a few of the paths that bind the symphatheticus to the heart.[10] A total resection of the three cervical and upper dorsal ganglions much more completely interrupts the path.

Danielopolu and Hristide[19] have made the interesting observation that anesthetization of the second and third left spinal nerves stopped attacks of angina pectoris. They proposed the resection of the roots of the nerves corresponding to the pains in this condition, that is, from the eighth cervical to the fourth dorsal.

RESULTS

Jonnesco[1] has reexamined his patients at periods ranging from five to twenty-four years after operation and has never discovered the slightest unfavorable influence on the heart resulting from this total bilateral sympathectomy.

The immediate results of Jonnesco's operation[20] are (*a*) diminution of the left palpebral fissure; (*b*) extreme diminution and fixity of the left pupil; (*c*) retrocession of the left eye in the orbit. These findings were present even when the superior cervical ganglion is not touched, but only the second and third cervical and first thoracic are resected.

16. Wilder, W. H.: Proceedings of the Section on Ophthalmology, American Medical Association Annual Session, May, 1903.
17. Mayo, C. H.: The Surgical Treatment of Exophthalmos, J. A. M. A. **63**: 1147 (Oct. 3) 1914.
18. Selileau, Pierre; and Schwartz, A.: Rev. de chir., 1907; abstr. Hemeck, A. P.: Surg., Gynec. & Obst. **5**: 489, 1907.
19. Danielopolu, D., and Hristide: Bull. et mém. Soc. méd. d. hôp. de Paris **47**: 69; abstr. J. A. M. A. **80**: 1490 (May 19) 1923.
20. Jonnesco, Thomas: Bull. de l'Acad. de méd. **84**: 93 (Oct. 5) 1920; abstr. J. A. M. A. **75**: 1525 (Nov. 27) 1920.

Four years later there was still a diminution of the left palpebral fissure; the pupil was contracted, the eyeball was sunken, and there was facial asymmetry from the sunken eyeball and the contracted pupil.

COMMENT

De Schweinitiz[21] notes that sympathectomy or gangliectomy causes myosis; narrowing of the palpebral aperture; projection of the nictitating membrane; retraction of the globe of the eye; hyperemia of the vessels of the conjunctiva; increased lacrimal secretion; diminished intra-ocular tension; certain ophthalmoscopic and macroscopic lesions in the eye-ground, and possibly trophic disturbances. He also notes that all the phenomena of paralysis of the sympathetic nerve, especially the contraction of the pupil, which follow extirpation of the superior cervical ganglion gradually become less marked, and may disappear or even give place to the opposite condition. Such paradoxic pupillary dilatation may depend on degenerative processes in the postcellular nerves of the ganglion (Langendorff). The myotic pupil, which follows sympathectomy or gangliectomy, responds to light stimulus, is still further contracted by physostigmin (eserin), and may be dilated by atropin.

It has been thought that this operation not only causes the suppression of the paroxysms of pain but also does away with usual cause of sudden death in these cases.

Jonnesco[1] reports three cases of angina pectoris cured by cervical sympathectomy on one or both sides. Tuffier[22] reported three successful cases. Brüning adds a case of angina pectoris with a successful extirpation of the cervical sympathetic ganglions. Brüning observed a lowering of blood pressure from this operation.

Coffey and Brown[8] have made a careful study of the subject, and have accompanied their paper with interesting electrocardiograms. They conclude:

> Sympathectomy was done in five cases of angina pectoris, two of them presumably due to syphilitic aortitis. Death occurred in one case. Marked improvement was noted in the remaining four cases.

The following is the report of a case in which we operated:

REPORT OF CASE

A. C. O., a woman, age 63, admitted to the Evanston Hospital, March 17, 1924, in the care of her physician, Dr. William G. Alexander, had as her chief symptoms pain over the precordium, pain radiating down to the left arm, "palpitation of the heart" and headache. A diagnosis of angina pectoris and chronic myocarditis had been made. The chief features of interest in the history were the attacks of precordial pain. The patient had had these for the last three years. They were increasing in frequency until, during the last five weeks prior to admission, there had been three severe attacks while the patient had been at rest in bed and under treatment. The last attack was four days previous to admission and began as an excruciating "griplike" pain over the precordium, which radiated through to the back and down the left arm. The extremities became white, and perspiration broke out on the patient's forehead and chest. The pulse was not palpable for two or three minutes. The attack, which lasted from eight and one-half to nine minutes, was relieved by two doses of 1/100 grain (0.00065 gm.) each of nitroglycerin. Dyspnea and headache were present after the attack.

Of other interest in the history were the recurrence of the menopause at 53 years of age; cholecystectomy and thyroidectomy at 53; appendectomy for acute appendicitis at 58, and radical amputation of the right breast at 60.

The chief points of interest in the physical examination were that the pupils were equal and reacted to light and in accommodation, and there was diastolic murmur at the apex of the heart. The blood pressure was 198 systolic, and 120 diastolic. The urine contained a trace of serum-albumin and a few leukocytes and erythrocytes. The leukocyte count was 10,350; the red cell count was 5,660,000, and the hemoglobin was 100 per cent.

Two days after admission, we performed cervical sympathectomy. The incision was made at the anterior border of the sternocleidomastoid muscle. This muscle and the carotid sheath and its contents were retracted posteriorly, and only the middle cervical ganglion was removed, by avulsion. During removal of the ganglion, the left pupil was dilated and tears came from that eye. The patient's condition was excellent throughout the operation. The postoperative course was of interest. There was a transitory impairment of the left lower lip, which did not have its full motion. Both the pupils reacted to light and in accommodation. On the second day after operation, the blood pressure was 154/100; on the third day, 150/90; on the sixth day, 178/100; on the seventh day, 184/102, and on the ninth day, 178/100. The wound healed cleanly, and the skin stitches, which were the only ones that had been used in the closure, were removed on the sixth day. The patient was discharged from the hospital on the tenth day, and her convalescence at home has been steady and rapid. Save for a mild attack in the middle of April, there have been no anginal attacks, and the diminution of the blood pressure has persisted to date (May 8, 1924).

30 North Michigan Avenue.

21. De Schweinitz, G. E.: Proceedings of the Section on Ophthalmology, American Medical Association Annual Session, May, 1903.
22. Tuffier, T., cited in discussion on Jonnesco, Thomas: Bull. de l'Acad. de méd. **86**: 67 (July 19) 1921; abstr. J. A. M. A. **77**: 892 (Sept. 10) 1921.

RIGHT PARADUODENAL HERNIA

RECOVERY AFTER OPERATION (THE THIRD IN MEDICAL LITERATURE)

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AND
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Up to 1898, Moynihan,[1] in his exhaustive study of the subject, had been able to compile only fourteen cases of right paraduodenal hernia, and only one case in which successful operative treatment had been carried out. Nagel,[2] in a recent review of the subject, brings the number of reported cases up to twenty-nine, including the one that he himself reports. Furthermore, he finds that a second instance of recovery after operation had been reported since the publication of Moynihan's monograph. We here record still another case of this rare variety of internal hernia, especially as it constitutes also the third instance, in medical literature, of successful operative treatment of the condition.

REPORT OF CASE

History.—A man, aged 34, white, married, a plumber, was referred to one of us (E. N.) by Dr. Frank N. Hillis, Jan. 30, 1924. The family history was unimportant. The patient's health had been good up to six years before. At that time, he began to suffer with bloating and discomfort after eating. On two occasions, six and three years before, he had had severe attacks of pain, involving chiefly the upper abdominal zone. The first attack was so severe that he was given several hypodermics of morphin by his attending physician. The second attack was milder. For six months before admission to the hospital, he had noticed an area of definite tender-

1. Moynihan, B. G. A.: On Retroperitoneal Hernia, Arris and Gale Lectures, London, Baillière, Tindall & Cox, 1899.
2. Nagel, G. W.: Right Paraduodenal Hernia, J. A. M. A. **81**: 907-912 (Sept. 15) 1923.

ness, below and slightly to the left of the umbilicus. His digestive symptoms had also become more marked, and he was much annoyed with water-brash after eating. He had been quite constipated for three months, whereas previously the bowels had been very regular.

At 5 a. m., January 29, he was awakened by violent, griping pain in the region of the umbilicus; he was, as he expressed it, "drawn double." The pains were distinctly colicky, recurring at intervals of a few minutes. There was also intense, diffuse soreness over the whole abdomen. Nausea, vomiting and frequent eructations of gas occurred during the day. The pain became more severe during the night. Several high enemas are said to have been ineffectual, although a spontaneous movement occurred early on the morning of January 30, when he was admitted to the hospital.

Physical Examination.—The abdomen was flat and board-like in its rigidity. The muscles were unusually well developed, and there was almost no adipose tissue. There was diffuse tenderness over the whole abdomen, most marked to the left of the umbilicus. No abnormal mass could be seen or felt. The temperature was 99.5 F., while the blood count showed 13,000 white corpuscles, with 82 per cent. polymorphonuclears. A diagnosis of probable perforated duodenal ulcer was made, and an operation was performed.

Operation and Result.—A right paramedian incision was made, between the ensiform cartilage and the umbilicus. The parietal peritoneum was unusually thick, almost like fascia. The stomach was small and undistended, and presented no abnormalities. The first portion of the duodenum likewise gave no evidence of ulcer, and the gallbladder was normal. The remainder of the viscera presented a remarkable picture, as illustrated in Figure 1. No small intestine was seen. The greater portion of the abdomen was occupied by an encysted mass, which at first gave the impression of being an enormous cyst. The ascending, transverse and descending colons encircled the mass. All were moderately distended. The greater portion of the enlargement was to the left of the midline, but the enlargement also extended far toward the right, behind and to the right of the ascending colon, which was thus pushed forward and medianward. Beneath the peritoneal envelop of the mass could be made out the vague outline of intestinal coils. It was now recognized that we were dealing with a retroperitoneal hernia, although its exact nature and mechanism were still obscure. The peritoneum was incised, just to the outer border of the ascending colon; the inner sac of the hernia could then be easily dislocated toward the midline, as well as upward. In the latter direction, it extended to the region of the pancreas, which was exposed, together with the upper portion of the superior mesenteric vessels, as they crossed the pancreas from above downward. The hernial sac was now entered, and many loops of small intestine were exposed. They were moderately distended, but there was no indication of impaired vitality. The finger was passed downward and to the left, and the neck of the sac easily palpated. It was large enough to admit two fingers, and was directed downward, backward and to the left. The remainder of the ascending colon and the cecum were lifted from the posterior abdominal wall. The appendix was rather short and thick walled. There was an unusually well developed ileocolic band, extending from the appendix to the terminal ileum. Only about 6 inches of the latter was outside the sac. The band was ligated and severed, and the appendix was then removed. The reduction of the incarcerated hernia was completed as hurriedly as possible, as the patient's condition did not warrant prolonged manipulations. An effort was made to close the orifice at its lower portion with catgut sutures, but this was not as satisfactory as might have been wished, because of the comparative fixation of the edges. The ascending colon and cecum were lightly tacked back to the posterior parietes, and the operation was concluded.

The patient left the table in fairly good condition, and made a perfectly smooth recovery. He is now enjoying good health, with freedom from his former symptoms.

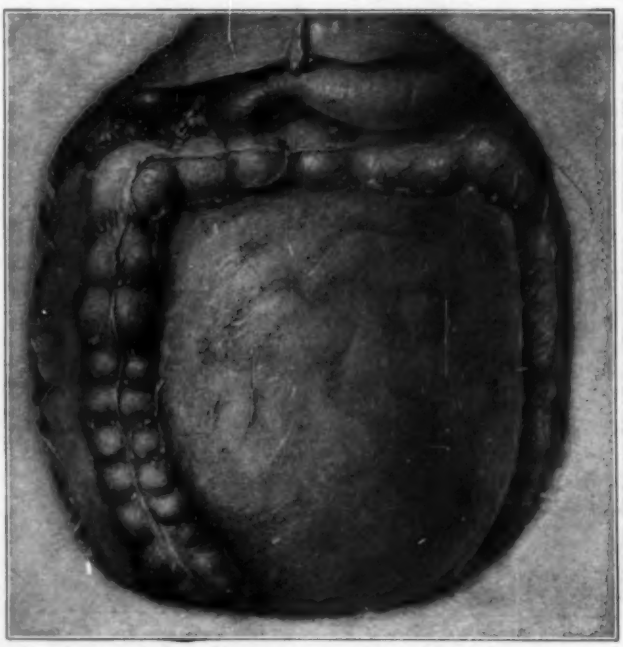

Fig. 1.—Appearance of enormous retroperitoneal hernial mass, filling most of the abdomen, with absence of small intestine in abdominal cavity, and the vague outline of the imprisoned intestinal coils through the hernial sac.

MECHANISM

The mechanism of right paraduodenal hernia has not yet been worked out with entire satisfaction, although the work of Moynihan, especially, has thrown much light on the subject. It is, of course, a form of retroperitoneal hernia, in the same broad sense as is a hernia through the foramen of Winslow, or a hernia into one of the retrocecal fossae. An intelligent conception of its mechanism presupposes a knowledge of the peritoneal fossae that are found in the region of the duodenojejunal angle. The investigation of these fossae has given rise to a bewildering nomenclature, which does not make their study any easier. At least nine fossae in this region are described by Moynihan. The existence of some of these is rather generally accepted, though usually under a variety of names; concerning others, there is much difference of opinion among authors as to the mere fact of their occurrence, much less their exact limitations.

Among the generally recognized fossae are the superior and the inferior duodenal. Both are situated to the left of the ascending portion of the duodenum. The orifice of the superior looks downward, while its apex is upward. This fact, together with the fact that the pouch, when it occurs, is only a potential one, probably explains why the superior duodenal fossa is of no importance in the causation of hernia. The inferior duodenal fossa is of more importance. In the first place, it is present in a much larger percentage of cases than any other fossa in this region. Its orifice is directed upward, vis-a-vis to the superior fossa, while the pouch extends downward toward the right of the mesentery.

A third fossa in this region is the paraduodenal, or the fossa of Landzert. To this, Moynihan attributes great importance in the causation of left duodenal hernia. The fossa is produced by the elevation of a peritoneal fold by the inferior mesenteric vein, which

thus comes to lie in the anterior margin of the fossa. We shall not describe this fossa at any great length, as it has no direct relation to the variety of duodenal hernia represented by our own case.

Right-sided paraduodenal hernia, according to Moynihan, has its origin in what he designates as the mesentericoparietal fossa, or the fossa of Waldeyer. His own description of it is as follows:

> The most usual position of this fossa is in the first part of the mesojejunum, immediately behind the superior mesenteric artery, and immediately below the duodenum. The fossa varies considerably in size. I have not infrequently seen a slight, though well defined, bulging of the peritoneum in this situation, but I have only thrice met with a distinct fossa in adults. In seventeen embryos of less than five or six months, I met with six fossae. The fossa has its orifice looking to the left, its blind extremity to the right and downward. In front, it is bounded by the superior mesenteric artery, and behind by the lumbar vertebrae. The peritoneum of the left leaf of the mesentery lines the fossa, that of the right covers the blind end, and is then continued directly into the posterior parietal peritoneum. A forcible enlargement of the fossa would thus result in tearing up this layer of peritoneum lining the posterior abdominal wall.

Moynihan lays down three factors as invariably present in all cases of right duodenal hernia. The sac, at least in the beginning, occupies the right half of the abdominal cavity; its orifice is behind and to the left of the sac, and in its anterior margin there lies either the superior mesenteric artery or its continuation, the ileocolic. This last factor can be easily understood from what has been said as to the position of this vessel in the anterior margin of the mesentericoparietal fossa.

Fig. 2.—Size, length and relations of the hernial ring. For the sake of clearness, the numerous sheetlike adhesions about the appendix and terminal ileum are not shown.

Nagel, in his recent study, takes issue with the assertion of Moynihan that the fossa of Waldeyer is invariably the starting point for this form of hernia. In none of the eighty-five adult subjects and seventeen fetuses that he dissected did he find a mesentericoparietal fossa. In four of the subjects, however, he found a very low position of the inferior duodenal fossa. He believes that a fossa of this type might readily give rise to a right paraduodenal hernia, for the bowel might well peel away the peritoneum of the upper margin of the fossa, and thus burrow to the right, toward the superior mesenteric vessels. The latter would thus come to occupy a position along the anterior margin of the hernial ring, this being the chief criterion of the right paraduodenal hernia. This contention appears to be a plausible one, although it would seem that the fossa of Waldeyer, when it exists, offers a much more direct and logical explanation of the mechanism.

In a recent paper, Andrews [3] advances an embryologic explanation of the causation of duodenal hernia, which term he considers a misnomer. He believes that the condition is a "congenital anomaly in the development of the peritoneum," and that it is due to "imprisonment of the small intestine beneath the mesentery of the developing colon." The arguments that he offers against the older theories of herniation into peritoneal fossae seem valid enough, and his explanation of the peritoneal developmental anomalies that may cause duodenal hernia are quite impressive. It appears probable that his paper will open up a new line of investigation of the entire subject.

3. Andrews, E.: Duodenal Hernia—a Misnomer, Surg., Gynec. & Obst. **37**: 740-750 (Dec.) 1923.

INCIDENCE

The twenty-nine cases previously reported are reviewed so thoroughly by Nagel that it would be a useless repetition to analyze them again. Furthermore, Nagel's paper is accompanied by a satisfying bibliography. It is of interest to note that the first careful description of this type of hernia was given as far back as 1661, by Klob. It may be observed at any age. The youngest patient was apparently that of Paton, and was aged 3 months; the oldest, a woman of 68, reported by Rose.

SYMPTOMATOLOGY

A large portion of the reported cases (seventeen out of thirty) have been discovered accidentally, on postmortem examination. Operation was performed in thirteen cases, including our own, and in ten of these the hernia was found to be the cause of the symptoms. In the others, the presence of the hernia was incidental to some other condition. It is obvious that an individual might harbor such a hernia for many years without acute symptoms, the latter being precipitated by incarceration or strangulation of the herniated intestine, as with other varieties of hernia. Our own patient had had two milder acute attacks previous to the violent one that brought him to operation. For six years, however, he had suffered with digestive symptoms not unlike those seen with chronic duodenal ulcer, for which the condition was mistaken, as noted in the history given above. In not a single reported case, according to both Moynihan and Nagel, has a diagnosis been made before operation or postmortem.

OPERATIVE TREATMENT

Our case seems especially gratifying because of its successful outcome. Two previous cases are reported in which recovery followed operation. The first was the case of Neumann,[4] in 1898. His patient was a woman of 55, who was operated on because of symptoms of obstruction. Only a few intestinal coils were found outside the sac. The intestine within the sac was found to be cyanotic and distended. Neumann endeavored to

4. Neumann, A.: Ein Fall von operativ geheilter Hernia retroperitonealis Mesenterico-Parietalis, Deutsch. Ztschr. f. Chir. **47**: 476-491, 1898.

close the ring by suturing it from above downward, leaving a small portion open for drainage. The second successful case was reported, in 1912, by Carson,[5] whose patient was a man of 29. As in our case, several previous attacks of pain had occurred, and the picture presented at operation was not unlike that which we found in our case. "Lying to the right of the pylorus were two portions of intestine apparently linked together—one duodenum, the other ascending colon." The operative procedure is thus described:

> The small intestine was withdrawn in a collapsed condition from a sac situated behind the peritoneum in front of the right kidney, and was found to have a double axial twist from left to right, completely obstructing the whole of the intestines at the neck of the sac. When the twist was released, the two portions of the intestine previously mentioned as linked together were freed also. It was now seen that the ascending portion of the duodenum and the duodenojejunal junction had a long mesentery, and were not in any way fixed to the posterior wall. The neck of the sac was large, the anterior margin containing the superior mesenteric artery, the posterior containing the inferior mesenteric vein. No attempt was made to close the opening.

Our own case is thus the third in which recovery followed operation. In many ways our findings were similar to those of Neumann. The incarcerated bowel, however, showed little evidence of cyanosis or strangulation. A point of especial interest in our case was the marked forward displacement of the ascending colon, and the fact that, as in one or two previously reported cases, the sac was incised above and to the right, dislocating the ascending colon inward toward the midline. The liberation of the bowel, however, was from right to left through the neck of the sac. The fact that the operation was, of necessity, a hurried one made it impossible to examine the neck of the sac with as much deliberation and detail as might have been done on the cadaver, but there can be little doubt, from what has been said as to the position and direction of the ring, that the hernia is properly classified as of the right paraduodenal type. As in Neumann's case, an effort was made to close the neck of the hernia by suture, although this was not quite as satisfactory as might seem at first thought. Inversion of the sac is, of course, out of the question in such a huge hernia as this was, though it would seem to be a rational procedure if the hernia is very small.

Showing apparent absence of penis, which is atrophied and retracted.

In our own case, the patient has thus far remained perfectly well, without even the slightest symptoms of digestive disturbance. Theoretically, however, it is of course possible that the intestine might again enter the neck of the sac, even though this has been partially obliterated. The fewness of the cases in which operation has been performed, and the fact that the surgeon will often appreciate the real nature of the case only after thinking it over and looking up reports of similar cases, will no doubt explain why so little of a definite nature can be stated as to the best plan of surgical treatment, after reduction of the hernia. These cases are not readily reproduced or imitated on the cadaver, and hence it would seem important that those who encounter hernias of this type in the more deliberate atmosphere of the necropsy room should study not only the mechanism involved but also the question of how best to treat surgically this form of hernia.

5. Carson, H. W.: A Case of Right Duodenal Hernia, Proc. Roy Soc. Med., Surg. Sec. 5: 214-216, 1912.

REFLEX ATROPHY AND CONTRACTURE OF THE PENIS FOLLOWING HERNIORRHAPHY *

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During the late war, new nervous disorders were described, and previously reported conditions were again brought to light. Perhaps none of these conditions caused more comment, especially by the French, than the so-called reflex paralyses. Roussy [1] gave the name of "the dyskinetic syndrome" to this condition. Babinski [2] proposed that the phenomena be called physiopathic—"a term intended to express the idea that, on the one hand, neither hysteria nor any other psychopathic state can produce them, and, on the other hand, that, while indicating a physical and material disorder of the nervous system, they do not appear to correspond to any lesion which can be detected by the methods at our disposal."

Reflex paralysis develops after wounds or injuries of the limbs, and sometimes after frost bite; the bones and joints are often not involved. The syndrome frequently comes on in cases in which an extremity has been transfixed by a foreign body and the nervous disturbance is found present above the wound as well as below. The symptoms may come on almost immediately after the injury, which may be very slight, or the onset may be delayed some weeks, or, in rare cases, months. The hand and forearm are more frequently involved than the lower extremity. The affected part is paralyzed, although the paralysis does not correspond to any nerve or root distribution. Contractures take place that are due in some instances to hypotonicity in certain groups of muscles and hypertonicity in their antagonists. The affected part shows marked vasomotor phenomena, with a lowering of the temperature; increased muscular irritability is present both to mechanical and to electrical stimulation. Muscle atrophy is present in some cases, usually slight, but, it may be, marked; but reactions of degenerations are not present. Decalcification of the bones in the involved area has been noted. The tendon reflexes are exaggerated on the affected side, the exaggeration becoming more pronounced under anesthesia.[2]

There has been a lively debate among neurologists whether this condition is organic or hysterical. Several theories have been advanced to explain reflex paralysis; the first of these is the reflex theory, and attributes the

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1. Roussy, Gustave: Elements of Predisposition and Determining Causes of Secondary Disorders in Psychoneurotic Acroparalysis Resulting from the War: "The Dyskinetic Syndrome," Arch. Neurol. & Psychiat. 4: 247 (Sept.) 1920.

2. Babinski, J., and Froment, J.: Hysteria or Pithiatism, University of London Press, 1918.

origin of these disorders to changes in the nerve cells, which are supposed to occur, for example, in the muscular atrophy that follows arthritis. The second, or dynamogenic, theory holds that, if treated properly, the disorders will disappear without leaving any residual; but, if not properly cared for, conditions become fixed by a psychic mechanism. The theory admits an organic lesion, usually slight, at first. The dyskinetic theory has been advanced by Roussy and his associates. Roussy thus summarizes his remarks: 1. To enable the appearance of vasomotor and trophic disorders, through the course of acrocontractural and acroparalytic manifestations, the following conditions are necessary: (*a*) elements of predisposition and among them circulatory troubles; (*b*) immobility or defective function, and (*c*) a special mental state. 2. The circulatory caloric and trophic disorders are only manifestations of a secondary class arising from primary conditions of neuropathic nature, paralysis or contracture.

It may seem a far cry to explain any condition of the penis along these lines, yet I believe that in the case about to be cited the condition is comparable to reflex paralysis.

REPORT OF CASE

History.—A white man, aged 25, single, a pugilist before the war, enlisted, July 20, 1917, and was discharged, Oct. 25, 1918. His chief disability came on after an operation for a right inguinal hernia, Feb. 2, 1918. Following this operation, he noted that the penis became smaller and smaller, and in the course of a few weeks became buried in the fat over the pubic region. The penis could not be protruded beyond the glans. Any effort to deliver the organ was accompanied by considerable pain and by great anxiety and fear. Before the operation for hernia, he was capable of performing the sexual act, but since then he had never had an erection. The physical defects (obtained from the Adjutant General's Office) at enlistment were: (1) slight left varicocele; (2) first degree of flatfoot, and (3) one missing tooth. Additional evidence is available from medical men testifying to the normal condition of the man's external genitalia before the war.

The patient was in various hospitals almost continuously from Feb. 2, 1918, until October, 1918, yet he told of some momentous doings at the front in which he participated during this time. He informed one medical officer that he held an entire sector by himself, and in doing this he was wounded in the groin by shrapnel. He was rendered unconscious and remained so for two days, and later he was decorated by the French government for extraordinary heroism in action. As far as can be determined by records in the war department, all these statements are fabrications. The man also claimed at one time that the condition of the penis followed shrapnel wounds of the lower abdomen.

When I saw the patient in 1923, I immediately recognized him as a soldier whom I had examined as a member of a disability board, March 14, 1918, at Blois, France. At that time, about six weeks after the operation for hernia, he had the retraction of the penis which was now his chief source of worry, discomfort and apprehension.

Examination.—From a general physical point of view, the man was extremely well developed and nourished. He was 5 feet, 7 inches (170 cm.) tall and weighed 180 pounds (81.6 kg.). His lungs, heart, reflexes, teeth, mouth and muscular development were normal. A scar was present in the right inguinal region, the result of a hernia operation. The scrotum and its contents were normal. At first sight it appeared that the man had no penis (as in the accompanying illustration), but on further examination the organ was discovered buried in the lower part of the abdominal wall. The man could not voluntarily protrude the penis at all, and manipulation of it caused pain. It was impossible accurately to determine the size of the penis, which lay buried in prepubic fat, but it would seem to be about 1½ inches (4 cm.) in length and one-half inch (1.2 cm.) in diameter. There was an excessive amount of perspiration about the external genitalia. Pain, touch, heat and cold sensations were normal except over the penis, where hyperesthesia was present. The blood and urine examinations were normal.

COMMENT

The patient was normal, as far as the external genitalia were concerned, before an operation for a right inguinal hernia, Feb. 2, 1918. When I first saw him, which was about six weeks after the operation, he had an atrophy and retraction of the penis, and these things have persisted ever since. No evidence of nerve injury can be obtained, and there is no record of injury to the vessels in the inguinal canal. What, then, could have caused the most extraordinary condition which the man has today and had, in fact, six weeks after the operation?

Surgeons with world-wide experience, and genito-urinary experts of national repute, have informed me that they have never seen a similar deformity occur as a result of a hernia operation. I believe that this condition corresponds to the reflex atrophy and paralysis that occur in an extremity as the result of a wound or injury that may be trivial. It is needless to say that, in view of the part involved in the case reported, not all the symptoms and physical findings of reflex atrophy and contracture are present.

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INVERSE RELATION BETWEEN IODIN IN FOOD AND DRINK AND GOITER, SIMPLE AND EXOPHTHALMIC

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WITH THE TECHNICAL ASSISTANCE OF

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We consider that we have proved statistically that both simple [1] and exophthalmic goiter in the United States are caused by iodin starvation.

The Swiss goiter commission has been concerned with the prophylactic use of iodin, particularly iodized salt, and it secured the services of Fellenberg [2] to make a study of the distribution of iodin in nature. Fellenberg has, in a general way, confirmed Chatin's conclusions. He also found that iodin when added to salt [3] was volatilized to some extent in ordinary storage in a grocery store. Since he found that the purer the salt, the less loss of iodin occurred, it seems probable that the loss is due to the presence of nitrites or nitrates which oxidize the iodid to iodin, which then is lost in the air.

Fellenberg's report was not received by us until our work was complete. He developed methods somewhat similar to ours, though not quite so accurate; but by being content with less accuracy, he was able to make a much larger number of determinations. Fellenberg found that food from a goitrous region contained less iodin than the same food products of non-goitrous regions. He found wheat to be especially low in iodin, and most fruits and leafy vegetables and animal foods to be higher in iodin. The iodin of milk

1. McClendon, J. F., and Williams, Agnes: Simple Goiter as a Result of Iodin Deficiency, J. A. M. A. **80**: 600 (March 3) 1923. Miesbach, E.: Deutsch. med. Wchnschr. **48**: 657 (May 19) 1922.
2. Von Fellenberg, T.: Mitt. a. d. Geb. d. Lebensmitteluntersuchung u. Hyg. **14**: 161, 1923.
3. Fleissig, P.: Schweiz. Apoth. Ztg. **60**: 591-596, 1922.

was mostly in the butter. Wheat straw contained much more iodin than the wheat grain. Although Fellenberg found iodin in the air, he says that the amount is not significant in the prevention of goiter. He found a seasonal variation in the iodin of river water. This might be of interest in relation to the seasonal variation that has been found in the iodin of the thyroid gland.

These analyses of Fellenberg have been greatly extended in this country in relation to sea foods by Tressler and Wells for the United States Bureau of Fisheries, but have not yet been published.

EXPERIMENTAL

In Table 1 are the results of our analyses of foods from goitrous and nongoitrous regions. Owing to the great amount of time necessary for a single analysis, we have not attempted to obtain foods from all parts of the country, but have been content so far with foods from Minnesota and Oregon as the goitrous regions, and foods from the coast of New England and California as the nongoitrous regions. It may be seen from the table that in the nongoitrous regions the iodin content of the food may be 100 per cent. higher than that in the goitrous regions.

Several kilograms of wheat are necessary for an iodin determination, and the iodin is more concentrated in the coarse parts of the grain, being very low in the white flour. One sample of wheat ground in the experimental flour mill contained 6.6 mg. of iodin per ton; straight flour, 3.5; bran, 15.5; shorts, 9.6, and red dog flour, 3.7 mg. per ton. The 6.6 mg. of iodin in a ton of wheat was thus distributed: straight flour, 2.37; bran, 3.28; shorts, 0.9, and red dog, 0.04.

Fig. 1.—Goiter map of Switzerland: The black areas represent regions from which (during thirteen years) an average of from 80 to 240 per thousand of the draft have been exempted from military service on account of goiter; in the white area, from 10 to 80 per thousand have been exempted for the same reason. It should be noted that the highest rate in the United States is only 111 per thousand. The black area corresponds to the high Alps, and the greatest number of goiters were found in the deep valleys of these high Alps. The lake regions and the lowlands are in the white area. (After Hunziker.)

It would take a person ten years or more to eat a ton of white flour to get 3 mg. of iodin. Since the normal thyroid gland contains about 40 mg. of iodin, the contribution from white flour is evidently insignificant. Larger amounts of iodin were obtained from milk and animal products and leafy vegetables and fruits. It is significant to note that canned salmon (this is also true of some other sea fish) does not contain as much iodin per ton of dry weight as some leafy vegetables raised in goitrous regions. In fact, milk, the leafy vegetables and some fruits contain the highest amounts of iodin of any land products. If these vegetables are thoroughly macerated or ground in the preparation of the food, it is probable that the iodin can be extracted in the alimentary canal; but with some fruits most of the iodin is in the seeds and skins, and sometimes these are not eaten; when the seeds are swallowed whole, many of them will germinate after passing the alimentary canal, and we therefore assume that they have not been extracted thoroughly in regard to any constituent. We have not made many analyses of sea foods, but it is well known that the bony fish are rather low in iodin compared to some other sea foods, and that seaweeds are the highest in iodin of any substances used as food. Unfortunately, however, Americans do not use much seaweed as food. Professor Fry of the University of Washington demonstrated, many years ago, some very delicious foods that could be made out of kelp. The home economics department of the University of Washington had been experimenting on the use of kelp in food. It is probable that agar, which has a high iodin content, is coming into greater use in this country as a substitute for gelatin and pectin.

TABLE 1.—*Milligrams of Iodin per Metric Ton of Dry Foodstuff*

	Iodin Content	Locality
From Nongoitrous Regions		
Wheat	4	Storrs, Conn.
Wheat	9.3	Edgecomb, Me.
Oats	23	Storrs, Conn.
Oats	175	Wiscosset, Me.
Corn	52	Wiscosset, Me.
Barley	73	Storrs, Conn.
Rye	3.5	Storrs, Conn.
Carrots	170	California Coast
Salmon	45	Alaska
Salmon	75	Oregon
Salmon	115	Alaska
Salmon	324	Alaska
Goat's milk	400	California Coast (Salinas)
From Goitrous Regions		
Cereals:		
Oats	10	Minnesota
Wheat	1	Minnesota
Wheat	6.6	Minnesota
Straight flour	3.5	Minnesota
Bran	15.5	Minnesota
Shorts	9.6	Minnesota
Red Dog	3.7	Minnesota
Pot herbs:		
Spinach	19.5	Oregon
String beans	29	Oregon
Carrots	2.3	Oregon
Soup vegetables	13.5	Oregon
Fruits:		
Apples (peeled and cored)	3	Oregon
Pears (peeled and cored)	15	Oregon
Prunes	4.8	Oregon
Bing cherries	33	Oregon
Peaches	11.1	Oregon
Loganberries	160	Oregon
Animal foods:		
Skim milk	12	Minnesota
Butter	140	Minnesota

In order to demonstrate the iodin retained from a normal diet, one of us, aged 23, who had lived all his life in this goitrous region, but has always been free from goiter, was the subject of a three-day metabolic period. The diet was divided into equal parts; one half of it was eaten, this being the quantity which, as far as it is possible to determine, is the usual food intake both in quantity and in species of the different foodstuffs. The parts saved were analyzed for iodin, and, allowing time for the food to be absorbed, the excreta were collected for a three-day period and analyzed for iodin. The diet consisted of:

First day: Breakfast: oatmeal, bananas, toast and coffee; lunch: potatoes, eggs, celery, bread, butter, rice pudding and one glass of milk; dinner: potatoes, roast beef, navy beans, bread, butter, jelly, blueberry pie and tea.

Second day: Breakfast: grapefruit, pancakes, maple syrup, strawberries, toast and coffee; lunch: potatoes, small amount of bacon, peas, radishes, peaches and one cup of tea; dinner: pork, potatoes, bread, butter, string beans, angel food cake.
Third day: Breakfast: whole wheat cereal, bananas, toast and coffee; lunch, potatoes, beef, cauliflower, prunes and milk; dinner: potatoes, beef navy beans, orange, apple pie and tea.
Water: 1.5 liters a day.

The bananas, oranges, prunes, grapefruit, peaches, coffee and tea are not raised in this region. The bananas came from a nongoitrous region, and the other imported foods may have come from nongoitrous regions. It seems probable that most of the iodin is derived from milk, butter, leafy vegtables and fruits.

We found that for the three-day period the iodin intake was 0.57 mg., and that there was excreted 0.021 mg., showing a retention of 0.036 mg. in three days, or 0.012 mg. a day. At this rate, it would require about ten years to accumulate 40 mg. of iodin. Since this subject had always been free from goiter although living in a goitrous region, his freedom from goiter is evidently due to the fact that he obtained enough iodin from milk products, leafy vegetables and fruits to

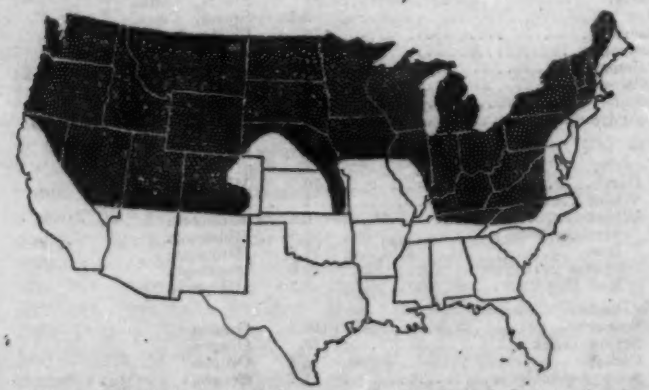

Fig. 2.—The iodin in drinking water in the United States: In the black area, waters contain from 1 to 22 parts of iodin per hundred billion parts of water; in the white area, from 23 to 18,470 parts. Some old analyses have shown even higher values in mineral springs in the southern half of California.

supply the thyroid gland. Many persons do not get a large quantity of these three food classes, and hence succumb to goiter.

Fellenberg[4] performed on himself an iodin metabolism experiment covering a long period. His food intake was not normal, however, but intentionally low in iodin; in the latter part of the experiment, iodin was added in the form of potassium iodid or cod liver oil, sardines or watercress; in one case, in the form of butter. Those who refer to Fellenberg's paper should note that he expresses his results in micrograms (1,000 micrograms making 1 milligram), but the numerical values he gets for the iodin content in foods are the same as ours. He records the micrograms of iodin per kilogram of food, and we record the milligrams of iodin per metric ton of food, in both cases being the parts per billion. Fellenberg's low iodin diet contained 0.0143 mg. a day. He excreted about the same quantity. On adding iodin in various forms to this basal diet, he increased the excretion but not to the extent of the intake, so that he obtained a positive iodin balance.

Our results on the iodin content of drinking waters are given in Table 2. The localities are divided into two regions. Practically all those of the first region contain less than 23 parts per hundred billion, and practically all those in the second region contain more than 23 parts per hundred billion. These two regions are shown in Figure 2. The black area is the low iodin region, and the white area is the high iodin region. In the making of this map, some difficulties have arisen owing to the fact that drinking waters are obtained from several different sources; (1) uncontaminated surface water; (2) surface water to which iodin has been added in the form of sewage; (3) underground water that has not reached iodin deposits, and (4) underground water that has received iodin from deposits usually formed by the evaporation of sea water, and hence containing sodium chlorid also.

TABLE 2.—*Parts of Iodin per Hundred Billion Parts of Drinking Water from the Iodin-Poor Zone and the Iodin-Rich Zone*

Iodin	Town	Source of Water
	Iodin-Poor	
1	Duluth, Minn.	Lake Superior
1	Spokane, Wash.	60 feet wells
1	Rockford, Ill.	450-1,500 feet deep wells
1.2	Ames, Iowa	Wells 75-100 feet deep
1.2	Wellesley, Mass.	Wells 65 feet deep
1.5	Bozeman, Mont.	Bozeman Creek
1.5	Iowa City	Iowa River
1.5	Geneva, N. Y.	Seneca River
1.5	Milwaukee	Lake Michigan
2	Marquette, Mich.	Lake Superior
2	Indianapolis	White River and wells 365 feet deep
2.3	Seattle	Cedar River
3	Portland, Ore.	Bull Run Lake
5	Waseca, Minn.	Well 240 feet deep
5	Rochester, Minn.	Wells 32-418 feet deep
5	Lincoln, Neb.	Wells 77-100 feet deep
6	Independence, Kan.	Verdigris River
6	Oregon City, Ore.	Clackamas River (glacial)
6.1	Cumberland, Md.	Mountain springs
7.6	Mount Clemens, Mich.	Wells 30-65 feet deep
8	Fargo, N. D.	Red River
9	Seattle	Cedar River
10	Winnetka, Ill.	Lake Michigan
10	Portland, Ore.	Bull Run River
10	Hagerstown, Md.	Mountain springs and streams
10	Brunswick, Md.	
10	Hutchinson, Kan.	
11	Lawrence, Kan.	Shallow wells
12	Chicago	Lake Michigan at Wilson Avenue Crib
13.2	Raleigh, N. C.	Walnut Creek
14	Morris, Minn.	Well 70 feet deep
14	Norton, Mass.	
15	Charlestown, W. Va.	Spring
16	Thurmont, Md.	Mountain stream
18	Hancock, Md.	Mountain stream
18	Chippewa Falls, Wis.	Chippewa springs
21	Columbus, Ohio	Scioto River
22	Nashville, Tenn.	Cumberland River
	Iodin-Rich	
23	Miami, Fla.	
25	Harrisburg, Pa.	Susquehanna River
40	Frederick, Md.	Small stream
60	Richmond, Va.	James River
61	Houston, Texas	Deep wells from 250 to 1,330 feet deep
66	Fort Scott, Kan.	Marmaton River
72	Washington, D. C.	Potomac River
77	Denver	South Platte River, Cherry and Bear creeks
88	Linden, Calif.	60 foot well
90	Springfield, Ill.	Sangamon River and adjacent wells
92	Richmond, Va.	James River
107	Rochester, N. Y.	Hancock Lake
110	New York City	Catskill Supply (F. E. Hale)
119	Le Roy, N. Y.	
130	New York City	Croton Supply (F. E. Hale)
145	Toronto	Lake Ontario
167	Charlottesville, Va.	
169	Kansas City, Kan.	Missouri River
174	New Haven, Conn.	Small lakes and rivers
230	Boston	Lake Cochituate, Sudbury and Nashua rivers
250	New York City	Long Island supply (F. E. Hale)
320	Atlanta, Ga.	Oconee River
352	St. Louis	Mississippi River
391	Salina, Kan.	Well
500	Baltimore	Gun Powder River
590	Berkeley, Calif.	San Pablo Lake
770	New Orleans	Mississippi River
5,458	Corona, Calif.	Source in Santa Ana Mountains
7,330	San Dimas, Calif.	Wells in river bed
10,580	Stanford, Calif.	Deep wells
18,470	Mexia, Texas	Deep well 3,005 feet

4. Von Fellenberg, T.: Untersuchungen über den Jodstoffwechsel, I, Biochem. Ztschr. 142: 246, 1923.

During various geologic ages, arms of the sea have been cut off by upheavals of mountain ranges, and left to evaporate and deposit their salts, including iodin, since sea water contains about 0.038 mg. of iodin per liter, partly in the form of iodid but chiefly in the form of iodate. Salt deposits (Fig. 3) are found in New York, Ohio, Michigan, Kansas, western Texas, California and other states. These deposits have been covered up by sand and silt, brought down from the mountains by rains. In moist regions, they do not, at the present day, add an appreciable amount of iodin directly to the surface waters; but in dry regions, the iodin so accumulated may possibly appear to some extent in the surface waters.

On the drilling of artesian wells, one may strike water relatively rich in iodin, whereas the surface water is very poor in iodin. The iodin content of the artesian water is then no index of the iodin supply of the region, since the foodstuffs may be watered entirely by surface water, and the person drinking the artesian water may be getting a high iodin content in the liquid part of his diet, but a low iodin content in the solid food, and hence may not be protected from goiter. The same is true of persons drinking water from certain waters contaminated with iodin from human agencies. If the foodstuffs are not watered from such contaminated water, that is to say, if they are watered mainly by the rain, the iodin content of this contaminated drinking water is no index of the iodin supply of the region. A certain amount of iodin is brought down in rain water, but this is relatively very small in comparison to that derived from the soil.

A very complete chlorin map of New England and New York has been prepared by the U. S. Geological

Fig. 3.—Simple goiter in the United States, from data of the Draft Board: In the white area there were from 0 to 5 military goiters per thousand drafted men; in the black area, from 5 to 111. The military goiter was defined as one too large to button a military collar around. In the region outlined below by the dotted line, and marked "Permian Salt Deposits," an arm of the sea was cut off from the Pacific Ocean by the upheaval of the Rocky Mountains during the geologic age known as the Permian period. Its evaporation left extensive salt beds, which have stratified owing to different solubilities of the salts, as shown by gypsum deposits, rock salt and deposits high in potash (in western Texas). In very dry regions, this material may reach the surface (perhaps secondarily), as shown by the potash lakes of western Texas. In moist regions, all the surface salts are washed away and the deposits are reached only in drilling deep wells. The iodin that was in the sea water is mixed up more or less with the other salts; some of it apparently reaches the food and drink of mankind to make this a low goiter region. It should be noted that the black and white areas correspond roughly to those of Figure 2, the most striking difference being that of New York State. If, however, we had included the waters of Lake Erie and Lake Ontario, which are high in iodin, and excluded the waters from mountain sources, in making Figure 2, the two areas would have corresponded.

Survey.[5] It has been shown that this chlorin is derived from sea spray; and if we assume that the ratio of iodin to chlorin (2:1,000,000) is the same as that in sea water, as shown by Winkler [6] and Cameron,[7] the amount of iodin derived from sea spray in the drinking water of New England amounts to only from 0.2 to 1 part per hundred billion near the coast, and to only 0.04 part per hundred billion at the border of the Great Lakes. This amount of iodin could be significant only if it were stored by food plants, and in this way concentrated for human nutrition. It is probable that the absence of goiter along the New England coast is due to the iodin

Fig. 4.—Exophthalmic goiter in the United States, compiled from Draft Board statistics. In the white area, from 0 to 2.85 per thousand drafted men were reported as having exophthalmic goiter; in the black area, from 2.85 to 93. It should be noted that the black and white areas correspond roughly to those of Figures 2 and 3, except for the edges of contact; but owing to the fact that there is considerable migration of the population, this is to be expected.

in the soil, and that the recession of goiter that has taken place in New York State during recent times is due to the greater transportation facilities for sea food into the inland regions.

The water of the lower Great Lakes and the St. Lawrence River is high in iodin owing to human agency; but since this iodin is not used for fertilizing the soil, it is not sufficiently high to prevent goiter in the cities using the water for drinking purposes. Therefore, we have not included Lake Erie (iodin, 86), Lake Ontario (iodin, 145) and St. Lawrence water in making the water-iodin map of New York. If these were included, however, New York would be iodin-high, which would correspond with the simple goiter map where it is low in goiter. Even after purification, sewage is high in iodin; tap water at Houston, Texas, showed 6.1 iodin, whereas the effluent from both disposal plants showed about 200 iodin.

In making the map showing the regions of low iodin in water, the following analyses were omitted from the determination:

1. East Lansing, Mich., well 400 feet deep, which struck an iodin-rich deposit, showing 67 parts per hundred billion.
2. St. Paul, small lake and well, iodin 83.
3. Mississippi River at Minneapolis, which is rather variable in iodin content, January to December, iodin: 1, 65, 47, 68, 57, 19, 64, 174, 50, 80 parts per hundred billion. The sewage from a population of about 100,000 passes into this water at Minneapolis and its iodin is probably mainly from "patent medicines"; at any rate, it is due to human agency, and yet this amount of iodin in the drinking water of Minneapolis is not sufficient to prevent goiter, since the foodstuffs are not irrigated by means of this water. A person may drink only 1 liter a day, which would contain only 0.0008 mg. of iodin when the iodin content was highest, and much less than this when the iodin content was lowest. It would take at least twenty-four years to consume 40 mg. of iodin. We assume

5. Jackson, D. D.: Water-Supply and Irrigation Paper 144, United States Geological Survey, 1905.

6. Winkler, L. W.: Ztschr. f. angew. Chem. **28**: 477, 1915; **29**: 68, 205, 1916.

7. Cameron, A. T.: Studies from the Biological Stations of Canada, 1922, p. 75.

that a child would not take it in as rapidly as an adult, and would require more than twenty-four years to accumulate the supply for a normal thyroid.

4. Cleveland, Lake Erie, iodin 86, omitted for the same reason.

5. Madison, Wis., from wells showing 72 parts per hundred billion, probably partly due to human agency.

6. Deep well supplying North Chicago, containing 105 parts per hundred billion, showing that it struck an iodin-rich stratum.

7. Salt Sulphur Springs, W. Va., iodin 4,469; unusual mineral water.

8. Chicago, Sixty-Eighth Street Crib, iodin 67, probably due to contamination from boats.

9. Morgantown, W. Va., iodin 47.

10. Greenville, Ill., deep well 127.

In mapping the iodin-rich zone, the following waters were omitted:

1. Brandywine Creek, supplying Wilmington, Del. This is in a humid region, and probably the rain water did not have time to extract much iodin from the soil before it flowed back to the sea. A single determination showed only 5 parts of iodin per hundred billion of water.

2. A spring at Hot Springs, Ark., showing only 5.4 parts per hundred billion.

It is interesting to note in Table 1 that the highest iodin content shown here is 18,470 times as great as the lowest. This answers the objection some people have to putting minute traces of iodin in drinking water in order to prevent goiter. These persons would drink water of another locality containing, say, 15,000 times as much iodin as the water of their home town, without the slightest objection, and, so far as has been observed, without the slightest ill effect. From the quantity in the normal thyroid gland and the rate at which a person may drink water, we calculate that in goitrous regions the iodin should be added up to 1,000 parts per hundred billion (or 1 part per hundred million). This is easily accomplished by adding about one-tenth pound (45 gm.) of sodium iodin per million gallons of water. The iodin content would then be less, in fact only from one fifth to one tenth of the iodin content of drinking water of some of the cities of the United States. Therefore we cannot see what objection there could be toward having the iodin content this high. On the other hand, assuming a person drank a liter a day of the treated water, that would give him 0.01 mg. of iodin a day; and since we found that a normal person retained about this quantity of iodin, even though the iodin of the food was entirely excreted, the iodin requirements of the individual would be satisfied. Furthermore, he would probably consume 2 liters a day. The water supplies of Rochester, N. Y.,[8] and Sault St. Marie, Mich., are now being treated with sodium iodid.

8. Benedict, Abner: Iodine of Soda in the Drinking Water, Health Bureau, Rochester, N. Y., May, 1923, p. 2.

Mortality of Insured Infants.—The Metropolitan Life Insurance Company began in the spring of 1923 to insure the lives of children under 1 year of age, and during the year, about 519,000 such policies were issued. The death rate was extraordinarily low, considering that these children were drawn from the wage-earning group. There were 34.5 deaths per thousand lives exposed to risk under 1 year of age. For the age division 9 months and under 1 year, the infant mortality rate among insured children was approximately the same as that which has prevailed among babies in the birth registration area of the United States. It should be remembered that these policies for infants were effected only on healthy lives. The mortality experience, therefore, does not include the great number of children born with congenital defects or affected with obvious developmental defects or acute diseases and conditions at the time of insurance.

ANEURYSMAL DILATATION OF PULMONARY ARTERY WITH PATENT DUCTUS ARTERIOSUS

DEATH FROM RUPTURE OF ANEURYSM INTO PERICARDIAL SAC *

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P. S., a woman, aged 29, married, housewife, born in this country, had an altercation with her sister-in-law on the night of Oct. 19, 1923, during which she fell to the floor, striking her head. She died immediately, and the sister-in-law was arrested on the charge of homicide, pending investigation.

I was notified about an hour and a half after the death of the woman. Investigation revealed that she had always been fairly well, except for shortness of breath, occasional dizzy spells and attacks of fainting. She had worked hard in the household, but had been under the care of a physician for what was diagnosed as chronic cardiovascular disease. The family history and the past history were otherwise negative. There was no history of syphilis. The deceased had never had any children.

The sister-in-law stated that there had been no form of violence during the altercation, the deceased having suddenly dropped to the floor without any apparent reason, and having died before the other members of the family, who were not in the room at first, arrived.

Necropsy, performed at 10 o'clock next morning, revealed that the deceased had been well developed, 5 feet 6 inches (168 cm.) tall and weighing around 135 pounds (61 kg.). Rigor mortis was present; postmortem lividities were slight. There were no external signs of violence of any kind. When the thoracic cavity was opened, the pericardium was found distended with blood. Further examination revealed a linear rupture, 2½ inches (63 mm.) long, on the anterior surface of the pulmonary artery. The edges of this tear were bluish from hemorrhagic infiltration. The vessel was the seat of an aneurysmal dilatation, with a greatest diameter of more than 3 inches. The ductus arteriosus was patent, easily admitting the index finger. The pulmonary valve had but two cusps, but was of normal size; the internal mammary arteries were not dilated. The mitral valve was thickened, particularly the aortic leaflet. The aorta showed a few small, atheromatous plaques. The lungs were congested and edematous; the liver showed an attempt at sequestration of the lower portion of the right lobe; the parenchyma was normal. The lymph follicles of the spleen were exceptionally prominent; the whole spleen was moderately enlarged. The remainder of the necropsy, outside of congestion of the brain, was negative.

The anatomic diagnosis was: hemopericardium following the rupture of an aneurysm of the pulmonary artery; patent ductus arteriosus; atheroma of the aorta; congestion and edema of the lungs, and congestion of the brain.

The final diagnosis was ruptured pulmonary aneurysm. Needless to say, the accused sister-in-law was immediately released from arrest.

Aneurysm of the pulmonary artery is quite rare. Many textbooks on pathologic anatomy, in fact, do not even mention the condition; others do so only in passing. Aschoff [1] states that aneurysms of the pulmonary artery are common, but, from the text of his work, it is evident that he refers to the beaded condition of the branches of the pulmonary artery found especially in tuberculosis of the lungs. Diffuse dilatations of the pulmonary artery and its branches occur not infrequently, but these do not represent definite aneurysms. Without going into the often rather confusing details as to what constitutes an

* From the Office of the Chief Medical Examiner of the City of New York.

* Read, with demonstration of specimen, before the New York Pathological Society, March 13, 1924.

1. Aschoff, L.: Pathologische Anatomie, Ed. 3, 2: 84.

aneurysm and what does not, I think it safe to assume that such a large sized saccular dilatation of an artery as was found in the case presented here is really an aneurysm. It represents the only pulmonary aneursym in the records of the Office of the Chief Medical Examiner of the City of New York, since Jan. 1, 1918. During the six years from 1918 to 1924, about 65,000 cases with almost 10,000 necropsies have been handled. This is proof positive that pulmonary aneurysm is rare.

Nevertheless, I found more cases of pulmonary aneurysm than I expected reported in the literature. Henschen,[2] for example, in 1906, after carefully sifting the literature, compiled forty-two such cases. Posselt,[3] in 1909, added nine more, and gave a bibliography of seventy-six authors on the subject. In addition, a few doubtful cases have been reported. Nearly all the aneurysms were necropsy findings.

Since 1909, a cursory review of the literature shows cases by Ploeger,[4] Warthin,[5] Foster,[6] Stoddard[7] and Pissot.[8] Zak[9] describes a pulmonary aneurysm and patent ductus arteriosus, but this was diagnosed only by roentgen-ray examination, and the diagnosis was not corroborated by necropsy. A number of pathologists also have found aneurysm of the ductus arteriosus associated with more or less dilatation of the plumonary artery.

As far as the etiology of pulmonary aneurysm is concerned, the most important factor seems to be a patent arterial duct, and a large number of the cases reported by Henschen, Posselt and others showed such a condition, although in no instance was the duct as large as that of the one I report here. Henschen also regards syphilis as an important causative agent, but Posselt does not agree with him. Although age does not seem to exert much influence (the ages in the various cases varied all the way from 5 months to 80 years), pulmonary aneurysm was nevertheless most frequently found in patients between 35 and 45 years of age. Unlike aortic aneurysm, pulmonary aneurysm is more frequent in women than in men, just as a patent arterial duct is oftener found in female than in male infants. The cause of the patency of the ductus arteriosus must be sought in the same mechanism that keeps the foramen ovale open and, as such, is intimately connected with the local changes in blood pressure due to the respiratory efforts of the new-born. Pulmonary atelectasis, therefore, undoubtedly favors a patency of the arterial duct.

Contrary to what one would expect, sudden death is not common with pulmonary aneurysm, and only two cases have been reported in which the patients died from a rupture of the aneurysm. In one of these, hemorrhage took place into the pleural cavity; in another, reported by Durno and Langdon Brown,[10] the hemorrhage was into the pericardium.

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3. Posselt, A.: Pathology of Pulmonary Artery, Ergebn. d. allg. Path. **13**: 1, 1909.
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6. Foster, N. B.: Report of Unusual Cases, with the Anatomical Diagnosis, New York M. J. **112**: 77 (July 17) 1920.
7. Stoddard, J. L.: A Case of Open Ductus Arteriosus (Botalli), with Necropsy, Arch. Int. Med. **16**: 38 (July) 1915.
8. Pissot, P. M.: Contribution to the Study of Aneurysms of the Pulmonary Artery, Thèse de Paris, Paris, A. Maloine et fils, 1919-1920.
9. Zak, E.: Patent Ductus Botalli with Aneurysmal Dilatation of Pulmonary Artery, Beibl. z. d. Mitt. d. Gesellsch. f. inn. Med. u. Kinderh. in Wien., 1912, Supp. 3.
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SPEECH DEFECTS

CLASSIFICATION AND TREATMENT AT THE UNIVERSITY OF CALIFORNIA HOSPITAL

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The study of the treatment of speech defects and disturbances has been left, for many years, to a few specialists or teachers with a limited knowledge of the causes of these disturbances. Not until recent years have physicians realized the need of a speech clinic to which such cases could be referred. After eight years of experience in conducting the speech defect clinic of the University of California medical department, I feel that a general discussion of this subject might be of interest.

In 1915, our clinic was opened under the auspices of the pediatric department. Since then the other departments also have referred to the clinic all cases needing speech improvement. Every kind of a speech defect, from the simplest type—that of poor enunciation, in cases sponsored by interested teachers—to the most difficult, i. e., the nervous type, has crossed the threshold of the speech clinic at the University of California Hospital.

For convenience in classifying, the different speech defects may be thus arranged:

1. The nervous speech disorders, under which come stammering, stuttering, cluttering, and nervous hesitation.
2. Retarded speech in both normal and subnormal children.
3. Infantile substitutions not caused by mouth malformations.
4. Substitution of sounds or imperfect speech caused by malformations of the speech organs.
5. Voice defects, not organic.
6. Voice defects after certain operations, such as cleft palate or adenoid.
7. Imperfect speech through partial deafness.
8. Aphasia, sensory or motor.
9. Foreign substitution of speech sounds, caused by foreign environment.
10. Sluggish enunciation due to poor muscular coordination, which may possibly have been caused by certain diseases of childhood.

NERVOUS SPEECH DISORDERS

Of the nervous speech disorders, stammering is a spasmodic action of the speech muscles which may be manifested visibly or audibly in degrees ranging from the slightest, almost imperceptible, to the most violent contortion. Stuttering, as understood in this country, is a rapid repetition of the initial sound of words. Cluttering is a rapid, choppy utterance because of which certain parts of words are slurred over or lost. Nervous hesitation in its very title is self-defined.

These four defects, after years of struggle and fruitless experimentation, often to the detriment of the patient's health or life, have at last been properly classified as to origin. German articles as recent as prewar days still confine stammering to the purely mechanical speech defect group. In fact, as late as the summer of 1923, I was amazed on visiting the speech clinics of Vienna, Paris and Berlin, to find them still clinging to the mechanical aspect, advocating physical speech drills, imposing torture through the use of numerous instruments for tests of breathing, phonation and muscle stimulation—attempting everything, in fact, but the

most direct, and from my point of view, the only method: that of reaching the seat of the trouble through psychologic reeducation. For I am convinced, after years of history-taking and of progressive familiarity with the inner lives of hundreds of speech defectives, children and adults, that the origin of their nervous disturbances is a psychic one—perhaps a sudden shock, perhaps continued emotional disturbance.

The treatment, granting this assumption, follows naturally. It consists in teaching the conscious control of the speech mechanism, and, at the same time, in associating new positive ideas of control, poise and confidence. The patient's obsession that his speech organs will refuse to work, his horror of being the object of ridicule, and his dread of being thought inferior—these are the three predominant fears that must be destroyed. Earnest application on the part of the patient, and intelligence and understanding on the teacher's side, will bring about results in a few months.

RETARDED SPEECH IN BOTH NORMAL AND SUBNORMAL CHILDREN

The end of the third year has been set by the Germans as the extreme limit for the attainment of complete speech control. This varies, however, with the individual child. Our records at the university clinic show normal speech development as early as at 2 and as late as at 9 years of age.

The normal child learns speech mostly through imitation, the child's accuracy depending on its sense of perception and its ear for the delicate shades of sound. When the desire for imitation, which is a primal instinct, is lacking, there exists a type of retarded speech defect caller "Hörstummheit" in German—dumbness without deafness. Children suffering with this defect must be very tactfully handled. Efforts to stimulate their imitative powers are usually of no avail, and it is only through patient, indirect teaching, the use of pictures, etc., that results are obtained.

Another type of retardation in speech development when the child is normal may be caused by inattention. This, bringing in its wake lack of concentration, and implying lack of, or at least dulness of perception, lays an excellent foundation for retarded speech. Treatment consists in first securing the attention of the child. Thereupon, auditory stimulation is fostered, the child actually being taught the elements of the spoken language, first sounds and then words. Later, he is taught language structure.

Cases of retarded speech in normal children are also occasionally found when there are unnaturally silent home conditions; there are instances in which on investigation, it has been found that the parents rarely speak to each other, or that the child has no companions.

Subnormal children must be judged from a different point of view. With them it is a question of mentality and inability to comprehend. The treatment in these cases is a slow building up of word associations by means of pictures, toys, and the like. This succeeds according to the degree of intelligence involved.

INFANTILE SUBSTITUTIONS NOT CAUSED BY MOUTH MALFORMATIONS

To the class of infantile substitutions not caused by mouth malformations also belong children who lack perception. Mistakes in speech made in early childhood are carried on into youth and adult life, merely because the patients themselves have never realized their mistakes, or have never had their attention called to them by others. Various forms of lisping come under this head. Mere placing of the tongue in the right position by means of a wooden spatula, or with the use of a mirror, followed by drill, will correct this defect.

SUBSTITUTION OF SOUNDS OR IMPERFECT SPEECH CAUSED BY MALFORMATIONS OF THE SPEECH ORGANS

The substitution of sounds or imperfect speech caused by malformations of the speech organs is a defect of a purely mechanical nature. In this group are harelip, feeble or very short upper lip, overshot jaw, narrow palate, cleft palate, sluggish palate, nasal obstructions, tongue-tie, and very irregular teeth. The treatment in most of these cases is surgical, followed by speech reeducation.

VOICE DEFECTS—NOT ORGANIC

The voice reflects every emotional state. High-pitched voices are caused by various psychologic disturbances, such as excitement, tenseness, anger or irritability. Timidity, on the other hand, expresses itself by low, weak tones. Nervous haste brings forth rapid, incoherent speech. Sarcasm is expressed by sharpness, nervousness by choppiness, and hatred by hardness. Coarseness and loudness are caused by a lack of breeding. Many of the nasal tones, as characterized by speech in certain parts of the country, are purely imitative.

Since this defect partakes of a dual nature, psychologic as well as physiologic, it must be approached from both standpoints. An agreeable speaking voice, either the teacher's or that of a mechanical substitute such as is furnished by a phonograph, is used to create a standard for imitation. Psychologic reeducation includes not only the pointing out of the basic trouble, whether it be irritability, timidity or what not, but also the supervision of the cure.

VOICE DEFECTS AFTER CERTAIN OPERATIONS, SUCH AS CLEFT PALATE OR ADENOIDS

Voice defects after operations are of common occurrence. No matter how technically perfect the operation and its results, speech itself must be retrained. The old speech habits due to, say, a cleft palate, are commonly clung to even when the defect has been righted. For this reason, it is very important that the patient be taught to raise and lower the palate and to redirect sound, in order to develop resonance. The formation of the explosive consonants, p, b, t, d, k and g, must actually be taught for the first time, since the very nature of the patient's affliction precluded the forming of these consonants.

Incidentally, it has been my experience that in cleft palate, better speech is obtainable in patients who have not been operated on than in those who have; that is, when the patients who have not been operated on have been supplied with a dental contrivance that is a combination of the hard and the soft palate, fitted in like a plate. The muscles in such cases are free to adjust themselves to the new apparatus, and the results from a speech standpoint are much more normal. A cleft palate operation in itself may be a perfect success, but the results, as far as the flexibility of the palate is concerned, do not compare with the dental method of procedure.

An unusually interesting example under this heading is the case of voice development after laryngectomy, which I recently witnessed in Vienna. A woman, aged 40, whose larynx had been removed the previous year,

was seen at her work, that of a superintendent of a hospital, telephoning and giving instructions. Her voice, while loud, was monotonous, carrying no inflections. It sounded hoarse. She had been taught to speak by developing an unusual function of the stomach. Instruction had been started by the giving of soda-water, which had started gas. From this belching, vowel sounds and words had been developed until a continuous sound resulted, and the patient had learned to use inhalations and exhalations at will, without recourse to the original stimulation.

IMPERFECT SPEECH THROUGH PARTIAL DEAFNESS

The first test applied to speech defectives, barring nervous speech defectives, is that of hearing. The discovery of partial deafness easily accounts for imperfect speech, and the patient is promptly referred to the proper specialist. If treatment on his part is of no avail, the residual hearing is developed, and lip-reading taught in the defective speech department.

APHASIA, SENSORY OR MOTOR

Complete sensory aphasia is hopeless from the point of view of treatment. Partial sensory aphasia is amenable to training, according to some authors, in patients up to the age of 12. Under this heading may be mentioned certain types of poor spellers and defective readers. Defects in visual perception, which are the cause of poor spelling, for instance, are approached by means of unusual size or color of type or lettering, thus emphasizing the troublesome letters.

Complete motor aphasia, since memory for the required speech action is gone, is also hopeless. Some patients with partial motor aphasia can be improved by exercises in muscular coordination and conscious word development.

FOREIGN SUBSTITUTION OF SPEECH SOUNDS CAUSED BY FOREIGN ENVIRONMENT

Each language has its definite tone inflection and its peculiar mouth action. In learning a new language, the student often carries over the habits of his own language, or substitutes the nearest sound if in doubt of the new sound formation. German and French, for instance, require greater action of the lips; English of the tongue and jaw; the Oriental languages call for practically no jaw action. The treatment is direction of attention to the existing facts, ear training, and correct tongue and lip positions.

SLUGGISH ENUNCIATION, DUE TO POOR MUSCULAR COORDINATION

Poor muscular coordination may be either physiologic or mental in origin. Physiologic sluggishness may be caused by an inertness of the speech muscles, often accompanied by mental inertness, or result from diseases of childhood, such as diphtheria, infantile paralysis or hemiplegia. The method of approach in such cases is a gymnastic one. Carefully organized and directed mouth gymnastics, followed by speech sounds and words, are repeated until greater flexibility and precision of movement are obtained.

CONCLUSIONS

Certain truths stand out preeminently. Again and again, I have found physicians who have advised anxious parents of children coming under one of the foregoing categories to wait, that they would "outgrow it." Nothing is more harmful than this waiting. The older the child grows, the more established and the firmer rooted does the speech defect habit become. If it is of a mechanical nature, early surgical intervention is advisable—nothing is gained by waiting. Only when the cases are light ones, caused by imitation, or when the increasing mental development of the child enables him to see and to correct his own mistake, are the defects "outgrown."

Waiting has another harmful angle. Any one of the aforementioned nervous speech disorders, if allowed to continue, has a destructive effect on the patient's morale. He becomes a warped, self-conscious and negative individual, full of fears. At times these fears are repressed, causing neuroses. All of these nervous speech disorders are curable if attacked in the right way by the right instructor. Their origin is psychologic, and psychologic reeducation is their solution.

EFFECT OF EXPOSURE TO LOW TEMPERATURES ON DIPHTHERIA TOXIN-ANTITOXIN MIXTURE*

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Early in the last week of January of the present year, an experience due to a peculiar set of unique and fortuitous circumstances occurred which could not have been anticipated by the application of any knowledge then existing. In two towns in Massachusetts, two different lots of diphtheria toxin-antitoxin mixture, after having suffered prolonged exposures to unusually low temperatures, were injected into a total of fifty-four children for the purpose of immunizing them against diphtheria, and produced severe reactions in forty-two of them. Both the local and the systemic reactions were typical of diphtheria intoxication.

All the facts strongly suggested the hypothesis that the exposure to temperatures below freezing had caused the antitoxin to dissociate from the toxin, leaving free toxin present in the mixture. In order to determine the validity of this hypothesis, the experiments here reported were carried out.

I. PREPARATION OF THE TOXIN-ANTITOXIN MIXTURE

The mixtures were made according to the recommendations issued by the United States Hygienic Laboratory. The details of the preparation of one of the mixtures (100 T) were as follows: The toxin made from *B. coli* fermented veal infusion broth containing 2 per cent. proteose peptone had been aged for nineteen and one half months. It originally had a minimal lethal dose of ± 0.0025 c.c., and at the time it was used in making the mixture its L + dose was 0.19 c.c. To 1,475 c.c. of this toxin was added 5.48 c.c. of concentrated antitoxic globulin, twenty-two and one half months old, and containing approximately 1,250 antitoxin units per cubic centimeter. The antitoxin was diluted just before its addition to the toxin with 5,900 c.c. of sterile 0.85 per cent. sodium chlorid solution containing 0.4 per cent. phenol (carbolic acid). The total volume of the mixture was 7,400 c.c., and each cubic centimeter contained approximately 1.05 L + doses of toxin. The mixture was made, Nov. 11, 1923, filtered

* From the Massachusetts Department of Public Health, Antitoxin and Vaccine Laboratory.

forty-eight hours later, and at this stage showed an excess of free toxin greater than the amount desired. Subsequent additions of 0.2, 0.05, 0.1, and 0.05 c.c. of the same antitoxin diluted 1 : 100 with a similar salt solution were made to the mixture, with the usual guinea-pig tests after each addition of antitoxin. The product as finally adjusted was within the limits of toxicity as specified in the regulations of the United States Hygienic Laboratory, and all tests showed it to be a satisfactory mixture. This product was used in one large clinic (1,700 doses) and in various parts of the state with uniformly satisfactory results.

II. TESTS ON THE PRODUCT CAUSING THE REACTIONS

One vial from the reserve laboratory stock of the particular lot concerned in the experience noted (Test 1) and one vial of the same lot (Test 2), which had been subjected to the same set of circumstances to which the material giving the reactions had been subjected, were tested for toxicity.

TABLE 1.—*Results of Tests on Product Causing Reactions*

Test 1.—Toxin-Antitoxin Mixture 100 T, Not Frozen

Pig No.	Weight, Gm.	Amount Injected, C.c.	Day of Paralysis	Day of Death	Cause	Comment
3398	275	5.0	..	6	Toxic ?	
3420	275	5.0	..	5	Acute toxic	Intraperitoneal injection ?
3394	275	1.0	19	29	Toxic	
3408	275	1.0	19	26	Toxic	Pregnant

Test 2.—Toxin-Antitoxin Mixture 100 T, Frozen

3395	265	5.0	..	2	Acute toxic	
3392	265	5.0	..	2	Acute toxic	
3414	295	1.0	..	5	Toxic	
3410	285	1.0	13	27	Toxic + pneumonia	
3396	270	0.5	13	27	Toxic + pneumonia	
3409	275	0.5	18	25	Toxic + pneumonia	
3422	250	0.1	..	..	.....	Released, 41st day; no paralysis at any time
3424	265	0.1	..	..	.....	Released, 41st day; no paralysis at any time

The results of Test 1 were similar to the original predistribution tests, and show that the strength of this mixture was within the limits specified by the federal regulations. Test 2 shows that the mixture contained in the vial that had the same postdistribution history as the material causing the reactions had developed approximately a tenfold increase in toxicity.

III. EFFECT OF FREEZING ON THIS MIXTURE

EXPERIMENT 1.—Three vials from the reserve stock of the Antitoxin and Vaccine Laboratory one L + diphtheria toxin-antitoxin mixture Lot 100 T were placed in a freezer at a temperature of 8 F. One vial was removed after being in the freezer three hours and fifty minutes, and was found to be frozen solid. It was thawed slowly at room temperature, and on thawing was found to be perfectly clear. Another vial was removed after being in the freezer eighteen hours and twenty-five minutes. This vial also was frozen solid, but showed a cream white sediment in the ice at the border of the air space in the vial. On thawing, some translucent gelatinous particles were observed in the fluid, and there was also an actual flocculation of opaque particles, which settled to the bottom of the vial on standing. The contents of the first vial were then injected (Test 3) subcutaneously into guinea-pigs according to the usual procedure for testing the potency of this product, and at the same time one vial from the reserve stock (Test 1) which had not been frozen was similarly tested as a control. On the following day the second vial (Test 4), which had been in the freezer for eighteen hours and twenty-five minutes, was injected into guinea-pigs.

TABLE 2.—*Results of Experiment 1*

Test 3.—Toxin-Antitoxin Mixture 100 T, Frozen 3 Hrs. and 35 Min.

Pig No.	Weight, Gm.	Amount Injected, C.c.	Day of Paralysis	Day of Death	Cause	Comment
3305	280	5.0	..	6	Toxic	
3397	290	5.0	..	9	Toxic	
3400	290	1.0	22	27	Toxic	
3417	295	1.0	19	29	Toxic	Bloody peritoneal effusion

Test 4.—Toxin-Antitoxin Mixture 100 T, Frozen 18 Hrs. and 25 Min.

3325	250	5.0	..	1	Acute toxic	Died in less than 33 hrs.
3351	255	5.0	..	1	Acute toxic	Died in less than 21 hrs.
3388	290	1.0	..	2	Acute toxic	Died in less than 33 hrs.
3390	295	1.0	..	2	Acute toxic	Died in less than 45 hrs.
3391	275	0.5	..	2	Acute toxic	Died in less than 45 hrs.
3399	285	0.5	..	3	Acute toxic	Died in less than 60 hrs.
3413	255	0.1	..	13	Pneumonia	
3418	290	0.1	..	5	Acute toxic	Intramuscular injection

The results show that:

1. Toxin-antitoxin mixture Lot 100 T was within the limits of toxicity approved by the United States Hygienic Laboratory.

2. Exposure to a temperature of approximately 8 F. for three hours and thirty-five minutes, rendering the fluid frozen, caused no appreciable change in the appearance or the toxicity of the mixture.

3. Exposure to a temperature of approximately 8 F. for eighteen hours and twenty-five minutes caused about a tenfold increase in the toxicity of the mixture.

EXPERIMENT 2.—In order to determine whether or not the increased toxicity of the frozen mixture was due to a liberation of diphtheria toxin or to the formation of some other poisonous substance, a vial of the same lot number of the same product which had been subjected to a freezing temperature for eighteen hours and twenty-five minutes was injected into guinea-pigs; other guinea-pigs received this mixture and, in addition, diphtheria antitoxin. If the original hypotheses were correct, the guinea-pigs receiving the frozen mixtures should show accelerated death, while those receiving the frozen mixture plus the antitoxin should not be affected. The protocol of this experiment follows:

TABLE 3.—*Results of Experiment 2*

Test 5.—Toxin-Antitoxin Mixture 100 T, Without or With Added Antitoxin

Pig No.	Weight, Gm.	Amount T.-A. Mixture, C.c.	A. U. Added	Day of Death	Cause	Comment
3302	260	5.0	....	2	Acute toxic	Died in less than 39 hours
3300	255	1.0	....	2	Acute toxic	Died in less than 39 hours; pneumonia ?
3323	295	5.0	±25	..	.....	No local reaction or paralysis at any time; released on 38th day
3335	290	5.0	±25	..	.....	
3340	295	1.0	1	..	.....	
3392	255	1.0	1	..	.....	
3354	255	0.5	1	..	.....	
3404	250	0.5	1	37	Peritonitis	

This experiment shows that:

1. The mixture after prolonged freezing became toxic.

2. The addition, however, of so small an amount of antitoxin as one unit to one human dose of the toxic mixture entirely protected the animals against any toxic reaction, and, therefore, it is safe to conclude that the toxicity of the frozen mixtures is due to the liberation of free diphtheria toxin.

EXPERIMENT 3.—In order to determine whether or not this change in toxicity after freezing was a peculiarity of one particular lot, an experiment similar to Experiment 1 was

carried out with Lot 100 X, which lot was made from the same toxin and the same antitoxin used in Lot 100 T.

TABLE 4.—*Results of Experiment 3*

Test 6.—Toxin-Antitoxin Mixture 100 X, Not Frozen

Pig No.	Weight, Gm.	Amount Injected, C.c.	Day of Paralysis	Day of Death	Cause
3472	275	5.0	15	18	Toxic + pneumonia
3478	305	5.0	15	18	Toxic + pneumonia
3279	305	5.0	12	14	Toxic
3260	285	1.0	15	23	Toxic
3261	290	1.0	15	25	Toxic + pneumonia
3275	335	1.0	15	23	Toxic

Test 7.—Toxin-Antitoxin Mixture 100 X, Frozen 4 Hrs. and 45 Min.

3701	250	5.0	..	3	Acute toxic
3703	250	2.5	..	9	Toxic
3709	280	1.0	..	16	Pneumonia

Test 8.—Toxin-Antitoxin Mixture 100 X, Frozen 6 Hrs. and 50 Min.

3715	255	5.0	..	3	Acute toxic
3729	305	2.5	..	4	Acute toxic
3744	255	1.0	14	23	Toxic
3761	295	0.5	17	25	Toxic + pneumonia

Test 9.—Toxin-Antitoxin Mixture 100 X, Frozen 25 Hrs. and 30 Min.

3766	275	5.0	..	3	Acute toxic
3763	250	2.5	..	5	Acute toxic
3764	285	1.0	17	25	Toxic + pneumonia
3765	270	0.5	17	25	Toxic (+ pneumonia ?)

Test 10.—Toxin-Antitoxin Mixture 100 X, Frozen 50 Hrs. and 45 Min.

3768	315	5.0	..	2	Acute toxic
3769	275	2.5	..	2	Acute toxic
3770	260	1.0	..	4	Acute toxic
3771	330	0.5	14	22	Toxic

Test 11.—Toxin-Antitoxin Mixture 100 X, Frozen 74 Hrs. and 45 Min., Supernatant Fluid Only

3772	320	2.5	..	2	Acute toxic
3773	260	1.0	..	2	Acute toxic
3774	265	0.5	..	3	Acute toxic

Test 12.—Toxin-Antitoxin Mixture 100 X, Frozen 74 Hrs. and 45 Min., Sediment Only

3775	285	15	No local or general reaction; released 38th day
3776	265	7.5	
3786	265	3	

This experiment shows that:

1. Freezing caused the liberation of toxin in this lot of the product.

2. The increase in the toxicity runs parallel to the length of exposure to freezing temperatures within the limits studied. This experiment also shows that by separating from the mixture the sediment which had formed as a result of freezing, and, therefore, removing any possible neutralizing action of the separated antitoxin, the fluid has a greatly heightened toxicity.

EXPERIMENT 4.—In order to pursue further the question involved in Experiment 3, another lot of one L + diphtheria toxin-antitoxin (100 Z), made with a different toxin and antitoxin from those used in the preparation of lots 100 T and 100 X, was subjected to freezing temperatures.

This experiment shows that:

1. The lot was within the Hygienic Laboratory limits for potency, but was nearer the lower border of toxicity.

2. A short exposure to freezing (six hours) produced a slight increase in toxicity, and this increase was augmented by a longer period of freezing.

3. Prolonged freezing (twenty-eight days) not only failed to cause any deterioration of the free toxin but apparently actually increased the toxicity of the mixture.

The foregoing experiments show plainly that freezing for a sufficiently long period (six hours or more) results in an increase in the toxicity of one L + mixtures. Several experiments have been carried out with three L + and one-tenth L + mixtures to determine the effect of freezing in these strengths. The results so far are conflicting and will be reported later when further data are at hand.

That antitoxin is thrown out of solution by freezing is demonstrated by some experiments in which the various constituents of toxin-antitoxin mixtures were frozen separately. For these experiments the following preparations were made:

1. Concentrated diphtheria antitoxin, undiluted.
2. Concentrated diphtheria antitoxin, diluted 1:100.
3. Concentrated diphtheria antitoxin, diluted 1:2,400 (the dilution present in one L + toxin-antitoxin).
4. Toxin broth, diluted 1:4.
5. Diphtheria toxin, undiluted.
6. Diphtheria toxin, diluted as in the toxin-antitoxin mixture.

Dilutions were made with 0.85 per cent. saline solution containing 0.4 per cent. phenol.

Undiluted concentrated antitoxin became slightly turbid after freezing for sixteen and one half hours. Diluted antitoxin showed a definite precipitation, and the precipitate did not go back into solution even after prolonged standing. The toxin broth showed a precipitate when thawed, which redissolved when the temperature of the fluid reached 15 C. Although a precipitate was formed in the toxin, this precipitate disappeared following thawing.

TABLE 5.—*Results of Experiment 4*

Test 13.—Toxin-Antitoxin Mixture 100 Z, Not Frozen

Pig No.	Weight, Gm.	Amount Injected, C.c.	Day of Paralysis	Day of Death	Cause
3932	250	5.0	14	26	Toxic
3940	255	5.0	14	21	Toxic + pneumonia

Test 14.—Toxin-Antitoxin Mixture 100 Z, Frozen 6 Hours

3894	250	5.0	..	4	Acute toxic
3895	255	2.5	12	17	Toxic + pneumonia
3917	250	1.0	17	..	
3928	...	0.5	17	..	

Test 15.—Toxin-Antitoxin Mixture 100 Z, Frozen 28 Hours

3864	265	5.0	..	2	Acute toxic
3874	255	2.5	..	2	Acute toxic
3879	255	1.0	..	7	Toxic ? pneumonia ?
2887	265	0.5	13	24	Toxic

Test 16.—Toxin-Antitoxin Mixture 100 Z, Frozen 77 Hours

3805	250	5.0	..	2	Acute toxic
3816	255	2.5	..	2	Acute toxic
3845	260	1.0	..	2	Acute toxic
3858	255	0.5	..	3	Acute toxic

Test 17.—Toxin-Antitoxin Mixture 100 Z, Frozen 77 Hours; Supernatant Fluid Only

3942	250	5.0	..	2	Acute toxic
3943	260	2.5	..	2	Acute toxic
3945	250	1.0	..	2	Acute toxic
3960	255	0.5	..	3	Acute toxic

Test 18.—Toxin-Antitoxin Mixture 100 Z, Frozen 28 Days

4174	285	5.0	..	1	Acute toxic
4188	285	2.5	..	1	Acute toxic
4189	275	1.0	..	2	Acute toxic
4191	290	0.5	..	3	Acute toxic
4230	296	0.25	..	2	Acute toxic

COMMENT

The exposure of one L + toxin-antitoxin mixtures (prepared according to the method described) to temperatures below the freezing point causes a marked increase in the toxicity of these mixtures if the exposure is sufficiently prolonged. This toxicity is due to the dissociation of the toxin and antitoxin combination. With this dissociation, a part, at least, of the antitoxin becomes insoluble, and it therefore no longer possesses its full neutralizing power. This condition results in the presence in the solution of an increased proportion of the originally combined toxin now in the form of

free toxin. This phenomenon was not peculiar to any one lot whether made as was the one originally used or from a different toxin and a different antitoxin.

Several questions raised by the experimental results must remain unanswered until further evidence is available. Among these are the effect of injecting mixtures that have been kept at room or icebox temperature for varying intervals following thawing; the temperature at which toxin-antitoxin mixture freezes; the effect of exposure of mixtures to different temperatures; the effect of freezing on three L + and one-tenth L + mixtures, and the possible reversability of the reaction.

SUMMARY

1. The exposure of toxin-antitoxin mixtures to temperatures of 10 F. or less for periods of six hours or more causes a turbidity which arises from the separation and precipitation of antitoxin and, possibly, other substances.

2. In the case of one L + mixtures there is associated with the physical change an increase of toxicity due to freed toxin.

OBSERVATIONS ON THE EFFECT OF FREEZING ON DIPHTHERIA TOXIN-ANTITOXIN MIXTURES *

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Such widespread publicity has been given to a recent report of serious reactions following the injection of a diphtheria toxin-antitoxin mixture which had been exposed to an extremely low temperature that it is feared the general use of this most valuable prophylactic agent may be affected. It has been assumed that, as a result of freezing, the toxin and antitoxin became dissociated, thereby increasing the toxicity of the mixture. It is well known that diphtheria toxin is extremely labile and subject to deterioration. Hence, any evidence of increased toxicity in a mixture of toxin and antitoxin would very naturally suggest some form of dissociation. It is therefore important to record without delay the results of a careful experimental study of the effect of freezing on the toxicity of such preparations.

The original toxin-antitoxin mixture that was used in prophylaxis against diphtheria contained undiluted toxin, the number of L +[1] doses in each cubic centimeter depending on the potency of the toxin used. Later a mixture diluted with salt solution to contain three L + doses was generally adopted. Recently a reduction has been made to one L + and even to one-tenth L +. Up to the present time this laboratory has continued to use the three L + mixture for routine distribution.

In March, 1922, a sample of mixture containing approximately five L + doses per cubic centimeter was frozen experimentally to ascertain whether material shipped during severe cold to distant parts of the state could safely be used. In this experiment, a precipitate formed after freezing, but there was no evidence of increased toxicity. In view of the recent report, however, the experiment has been repeated and extended to embrace the study of sixteen lots of the three L + mixture, together with three samples of one-tenth L + mixture and one of the one L + mixture for purposes of comparison. All the material was prepared in this laboratory with the exception of one sample of the one-tenth L + mixture, which was obtained from Dr. William H. Park of the New York City Research Laboratories.

Forty-nine tests were made with the sixteen samples of the three L + material, five with one-tenth L + and one with the one L + during February and March. In the latter part of February, an epizootic infection developed in the guinea-pigs, obscuring the results of a few of the experiments, but in no instance was there any evidence of a definite increase in toxicity that could be attributed solely to the exposure of the mixture to temperatures as low as 0 F. for periods varying from a few minutes to seventy-two hours. On the contrary, the greater number of the experiments showed a slight but definite decrease in toxicity.

The mixtures selected for the experiments were exposed to temperatures below freezing of approximately 22 F., from 16 to 20 F., and 0 F. (—5.6 C., from —8.9 to —6.7 C., and —17 C.) for very short periods and for periods of three, from eighteen to twenty-four, and seventy-two hours. All the samples frozen at 0 F. were held at that temperature for three days. Also the intervals between the time at which the samples had become melted and their injection were varied. Thus, in several tests the first fraction to melt was drawn off and injected at once; in others, the material was injected as soon as it had completely melted, or after one, four or twelve days in the cold room.

In order to ascertain whether any differences in toxicity could be detected from the injection of mixtures in which the precipitate, which forms on exposure to freezing temperatures, was in suspension or had largely or entirely settled out, series of tests with the cloudy material or the clear supernatant fluid were made.[2]

Most of the control samples of the mixtures, when injected into guinea-pigs in 5 c.c. amounts at the time of the test or a month or two previously, induced moderate to severe local reactions and late paralysis with death, usually in from sixteen to twenty-eight days, or paralysis without death when doses of 1 c.c. were used. For purposes of comparison, also very weak mixtures inducing only local reactions and very slight paralysis without death in 5 c.c. doses, and more toxic mixtures causing acute death within from four to six days were frozen and tested.

In each series, with one exception, the volume injected was always 5 c.c. In the case of the more toxic samples, however, doses also of 1 c.c. were given.

I. Both the less toxic and the more toxic samples of one-tenth L + mixture, after having been subjected to moderate or severe freezing for longer or shorter periods, invariably showed marked reduction in toxicity. This was true of both the local and the late reactions.

II. The sample of one L + mixture was subjected to severe cold for three hours, then melted and injected immediately. Both the local and the later reactions induced were much less marked than those in the controls.

III. Two lots of three L + mixture of moderate toxicity were frozen at approximately 16 to 22 F. for three and for twenty-four hours. The liquid portion of a partially melted

* From the Division of Laboratories and Research, New York State Department of Health, Augustus Wadsworth, M.D., director.

1. Lethal toxin-antitoxin.

2. In all tests in which mixtures were frozen three hours or longer, a precipitate formed that in the three L + material was always quite heavy and easily apparent when the mixtures were shaken, that in the one L + mixtures was less, and in the one-tenth L + mixture, while present, was occasionally so slight that it might be readily overlooked.

sample was tested, and also the completely melted mixtures at once and after they had been held in the cold room for twenty-four hours. Of the twelve guinea-pigs injected, all developed late paralysis but only one died, on the eighteenth day, and that showed evidence of infection at necropsy. Two additional samples of one of the mixtures that had been frozen under the same conditions were held in the cold room for one week. Sufficient clear supernatant fluid for the tests was removed from each and injected into a series of guinea-pigs. The portions that remained were then shaken and injected into another series. There was no evidence of increased toxicity, but rather a decrease in both series, though one or two animals showed local reactions equal to or slightly more marked than in the controls.

IV. As a matter of routine before being released for distribution, ten different lots of three L + mixture were exposed to temperatures of approximately 22 F. for a short time and to from 16 to 20 F. for forty-eight hours, melted at room or cold room temperature, and injected at once or after twenty-four hours. In no instance did acute death occur, nor were the local or the later symptoms any more marked than those in the control guinea-pig. On the contrary, in most instances the reactions were definitely milder.

V. Ten lots of three L + mixture were frozen at 0 F. for seventy-two hours, melted gradually, that is, in about six hours, and injected at once, and also in the case of three mixtures, after they had stood twenty-four hours in the cold room. A few lots were retested after several days at cold room temperature. In this series, deaths from concurrent infection have complicated the results. However, no deaths due to infection developed among the guinea-pigs receiving four of the ten lots tested.

1. These four mixtures included a very mild mixture, two mixtures in which the control guinea-pigs had died in twenty-four days, and one in which they had died in less than five days. In none of these mixtures was there any evidence of a definite increase in toxicity. While in certain guinea-pigs the local reactions induced equaled or somewhat exceeded those in the controls, the later symptoms were invariably slighter. None of the guinea-pigs died in less time than the controls.

2. In tests on each of three other mixtures treated similarly, one guinea-pig receiving 5 c.c. of mixture died in less than eight days, but in each instance one or more pigs of the same series lived over twelve days and practically all that died showed evidence of infection.

3. The tests on the three remaining mixtures, consisting of a slightly toxic, a moderately toxic and a markedly toxic mixture, were obscured by infection prevalent among the guinea-pigs. Five tests were made on the slightly toxic mixture frozen on three separate occasions. In two of the three tests made as soon as the mixture was melted, all but one of the pigs died acutely, and organisms of the concurrent infection were isolated from several. In the third test, none died early, but all gave evidence of infection at necropsy. In the two remaining tests made after the mixture had stood four and twelve days in the cold room, none died in less than ten days, and two of three animals showed evidence of pneumonia.

4. All three guinea-pigs injected with the more toxic mixture immediately after it had melted died in less than six days with symptoms of pneumonia, while the control died in over nine days. Control and test animals receiving 1 c.c. of the mixtures lived. In all the test guinea-pigs, the local reactions were equal to or usually more marked than in the control animals.

5. In two tests on the moderately toxic mixture injected at once after melting, all the guinea-pigs receiving 5 c.c. died in less time than the controls, and three died acutely. All but one, however, showed signs of pneumonia. Of the four pigs injected after the frozen mixture had stood four or twelve days in the cold room, two lived over twenty-five days.

Under the conditions of these experiments as determined by the usual test of toxicity, there is no evidence of increased toxicity of the mixture, which can be definitely attributed to dissociation of the toxin and the antitoxin as a result of freezing.

EFFECT OF FREEZING ON DIPHTHERIA TOXIN-ANTITOXIN MIXTURES

AS REGARDS TOXICITY *

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Early in January, 1924, it was reported [1] that, following the administration of diphtheria toxin-antitoxin that had been frozen, there developed in children, some forty in number, severe local reactions and constitutional disturbances. According to the tests made in the state board of health laboratory of Massachusetts and in the Hygienic Laboratory in Washington, it was found that when the unfrozen preparation was injected into guinea-pigs, a normal reaction was experienced; but that after freezing, the material became toxic. The diphtheria toxin-antitoxin used in these cases, and which developed toxicity after freezing, contained one L + dose of toxin partially neutralized with antitoxin. Occasionally some workers have reported that diphtheria toxin-antitoxin mixtures have become more toxic on keeping; but the majority have believed that these observations are erroneous. The occurrences in Boston make quite possible an explanation as to the reason for the occasional observation of increased toxicity on the keeping of diphtheria toxin-antitoxin, as the mixture may have at some time unknown been frozen. As it is an important practical question to decide definitely whether all lots of diphtheria toxin-antitoxin increase in toxicity on freezing when prepared according to the different formulas containing three L + doses of toxin, one L + dose of toxin or one-tenth L + dose of toxin, we undertook investigations of the various factors that might be connected with the increase in toxicity.

We have tested a number of lots of diphtheria toxin-antitoxin containing both three L + doses of toxin, and one-tenth L + dose of toxin, both before and after freezing, in order to determine whether there was any increase or decrease in toxin after freezing. In the manufacture of these lots of diphtheria toxin-antitoxin, highly purified diphtheria globulin prepared according to a modified Banzhaf-Gibson process of concentration had been used, and they had been stored for varying periods of time before the experiments were begun.

There were examined samples representing fifteen lots, prepared with three L + doses of toxin, and eight lots prepared with one-tenth L + dose of toxin, all containing 0.3 per cent. tricresol as a preservative. The various lots were frozen for periods varying from eighteen to ninety-six hours at temperatures varying from slightly below freezing to minus 5 C. In none of the lots mentioned was there found an increase in toxicity after freezing; in fact, there was observed, in some instances, a decrease in toxicity after freezing, so that a lot which, before freezing, caused acute death in 1 c.c., required larger doses to produce acute death.

All the lots of diphtheria toxin-antitoxin mixture taken from stock showed a precipitate varying from a slight haze to a heavy precipitate after freezing, although this was very much less in the case of lots prepared containing one-tenth L + dose of toxin.

* Read before joint meeting of the Association of Pathologists and Bacteriologists and the Association of Immunologists, Buffalo, April 17, 1924.

1. Kelley, E. R.: Frozen Toxin-Antitoxin Reactions, J. A. M. A. 82: 567 (Feb. 16) 1924.

INFLUENCE OF DIFFERENT PRESERVATIVES ON DIPHTHERIA TOXIN-ANTITOXIN AFTER FREEZING

After the heavy precipitate had been observed following freezing in mixtures containing three L + doses in which 0.3 per cent. tricresol was used as a preservative, we prepared two lots of diphtheria globulin containing about three units in each cubic centimeter, the usual amount of salt solution but no toxin being added. To one portion, 0.3 per cent. tricresol was added as a preservative, and in the other no preservative was used. Both lots were frozen to minus 5 C. for sixteen hours, at the end of which time they were allowed to thaw at room temperature. The portion containing 0.3 per cent. tricresol showed a heavy precipitate, while that portion with no preservative was unchanged in appearance after freezing. From this it will be seen that the freezing of diphtheria globulin containing 0.3 per cent. tricresol resulted in a partial precipitation of the proteins which on thawing would not go into solution on thorough shaking.

In order to test out the influence of various preservatives on mixtures containing diphtheria toxin-antitoxin, we prepared several lots of diphtheria toxin-antitoxin containing three L + doses and one-tenth L + dose of toxin, using as a preservative 0.3 per cent. tricresol, 0.5 per cent. chlorbutanol and 0.5 per cent. chloroform, and a portion without a preservative. All of these preparations were frozen at minus 5 C. for twenty-four hours, and at the end of that time they were allowed to thaw at room temperature. On examination, it was found that none of the mixtures containing one-tenth L + dose showed any marked change in appearance; but a change was apparent in the mixture containing three L + doses to which tricresol, 0.3 per cent., chlorbutanol, 0.5 per cent., and chloroform, 0.5 per cent., were added, all showing a heavy precipitate, while the preparation containing three L + doses of toxin with no preservative showed only a slight haze or cloudiness. Toxicity of the lots prepared as described was tested on guinea-pigs, and in no instance was there found any increase in toxicity, while some of the mixtures were less toxic after freezing than before.

EFFECT OF FREEZING ON MIXTURES PREPARED WITH UNCONCENTRATED DIPHTHERIA ANTITOXIN

Since none of the lots of diphtheria toxin-antioxin, prepared with globulin, containing either three L + doses or one-tenth L + dose of toxin in which various substances had been used as a preservative, and in lots without preservative, developed toxicity on freezing, we made a series of tests of mixtures using whole or unconcentrated serum as antitoxin.

Two different lots of unconcentrated antitoxin were used for the preparation of mixtures containing three L + doses and one-tenth L + dose of toxin, 0.3 per cent. tricresol being used as a preservative. Samples of the mixtures prepared as stated above were frozen for ninety-six hours at minus 5 C., together with samples prepared with a highly refined diphtheria globulin. It was found that, when these mixtures were allowed to thaw at room temperature, all those containing three L + doses of toxin showed a heavy precipitate, but that there was only a slight change in the appearance of the mixtures containing one-tenth L + dose of toxin.

The results of the tests of the mixtures after freezing showed that there was no change in toxicity in the mixtures in which the diphtheria globulin had been used containing either one-tenth L + dose or three L + doses of toxin, unless possibly a slight decrease in toxicity.

Both of the mixtures containing three L + doses of toxin prepared with unconcentrated serum had developed a great increase in toxicity after freezing, so that while 5 c.c. did not cause acute death in the unfrozen material, 1 c.c., after freezing, caused death of all the guinea-pigs in two days or less.

To 1 c.c. of the material that had developed increased toxicity on freezing was added five units of diphtheria antitoxin, and the mixture, after thorough shaking, was allowed to stand for thirty minutes, and then injected into guinea-pigs. Such a mixture did not kill the guinea-pigs even in 5 c.c. doses, thus showing that the toxicity that had developed after freezing was due to free diphtheria toxin that was neutralized by the addition of antitoxin. It is to be noted that many of the animals injected with this mixture developed late paralysis.

The foregoing experiments were repeated, the only change being in the time of freezing, which was reduced from ninety-six to eighteen hours, and the results obtained were practically as before. In every case, the mixtures in which unconcentrated antitoxin was used became more toxic, whether frozen for eighteen hours or for ninety-six hours. None of the mixtures prepared with unconcentrated antitoxin with only one-tenth L + dose of toxin developed increased toxicity on freezing.

Experiments were made to determine what influence, if any, the different kinds of preservative might have on mixtures after freezing, prepared with three L + doses of toxin and an unconcentrated antitoxin.

Lots of diphtheria toxin antitoxin prepared with three L + doses of toxin and unconcentrated antitoxin, 0.5 per cent. chlorbutanol and 0.5 per cent. chloroform being used, and without any preservative, were prepared and frozen for seventy-two hours at minus 5 C. In no case was there found any increase in toxicity in any of the lots so prepared.

Two lots of diphtheria toxin-antitoxin mixture containing three L + doses of toxin, unconcentrated antitoxin being used, were prepared, 0.5 per cent. phenol (carbolic acid) being used as a preservative, and frozen at minus 5 C. for twenty-four hours. After thawing, the mixtures contained a heavy precipitate. These two lots of antitoxin prepared and frozen as stated above were tested with the result that it was found that, whereas before freezing 5 c.c. did not cause acute death in guinea-pigs, 1 c.c. after freezing caused death in less than two days.

From the foregoing experiments, it is clear that mixtures of toxin-antitoxin containing three L + doses of toxin prepared from unconcentrated antitoxin in which tricresol and phenol are used become toxic after freezing, whereas when chlorbutanol and chloroform are used, or when no preservative is added, there develops no increase in toxicity after freezing.

EFFECT OF FREEZING ON MIXTURES CONTAINING DIPHTHERIA ANTITOXIN CONCENTRATED WITHOUT THE USE OF HEAT

It occurred to us that perhaps the failure of any of the mixtures tested by us to become toxic, when prepared with highly refined globulin, might be due to the removal from the globulin of some of the proteins that had been precipitated in the process of concentration in which heat was used.

We therefore made a concentration of diphtheria antitoxin in which heat was not used, and from this were made mixtures of diphtheria toxin-antitoxin containing both three L + doses and one-tenth L + dose of toxin, 0.3 per cent. tricresol being used as a preservative. Samples of these mixtures, both frozen and unfrozen, were tested for toxicity on guinea-pigs. The mixture containing three L + doses of toxin after freezing developed a heavy precipitate, whereas that containing one-tenth L + dose showed only a slight cloudiness. Tests on guinea-pigs showed an increase in toxicity of the three L + lots after freezing, so that while 5 c.c. before freezing failed to cause acute death, all the animals injected with 5 c.c. of the frozen material died in less than three days.

The mixtures containing one-tenth L + dose of toxin showed a decrease in toxicity after freezing.

EFFECT OF FREEZING ON DIPHTHERIA TOXIN

Samples of diphtheria toxin preserved with 0.5 per cent. phenol were frozen for forty-eight hours at minus 5 C., and then thawed at room temperature. A slight precipitate, as manifested by a haze or cloudiness, was apparent after freezing and thawing. Tests made of the toxicity before and after freezing showed that, whereas before freezing it contained about 400 minimal lethal doses per cubic centimeter, after freezing the toxicity was reduced approximately one half.

AMOUNT OF FREE TOXIN IN FROZEN MIXTURES

After determining that certain specially prepared mixtures of diphtheria toxin-antitoxin become toxic on freezing, it appeared to be desirable to determine the amount of free toxin in such mixtures.

A mixture of diphtheria toxin-antitoxin prepared with unconcentrated antitoxin was used. It was found that 5 c.c. of this mixture before freezing did not cause death; but all of the animals subsequently developed paralysis. One cubic centimeter of this mixture, after freezing, caused acute death of all the animals injected. It was found that after freezing this mixture, which had become toxic, contained free toxin equivalent to about twenty minimal lethal doses per cubic centimeter, while another lot similarly prepared contained approximately ten minimal lethal doses per cubic centimeter.

To 1 c.c. of each of these two lots of frozen toxin-antitoxin were added, respectively, one, two and three units of antitoxin. The mixtures were thoroughly shaken and allowed to stand for thirty minutes at room temperature, and then injected into guinea-pigs weighing 250 gm. each. It was found that the injection of these mixtures failed to cause acute death, but that the majority of the animals subsequently developed paralysis. Guinea-pigs were injected with 1 c.c. of toxin-antitoxin prepared with unconcentrated antitoxin that had become toxic on freezing, and simultaneously on the opposite side of the body were given in some cases five units and in others ten units of antitoxin. None of the animals died acutely, but all developed necrosis and sloughing at the site of the toxin-antitoxin mixture and developed paralysis between the thirteenth and the twentieth day, thus indicating partial neutralization of the free toxin by the simultaneous administration of antitoxin, but not sufficient neutralization to prevent the subsequent development of paralysis.

Tests made with the toxin used in most of our experiments showed it to have a minimal lethal dose of 0.002 c.c. and an L + of 0.125 c.c. Therefore, the mixture containing three L + doses actually had 0.375 c.c. of toxin, or 187 minimal lethal doses per cubic centimeter of toxin-antitoxin. As the most toxic mixtures used by us in our experiments, after freezing, contained only twenty free minimal lethal doses of toxin, it is readily apparent that only a small fraction of the original toxin became disassociated on freezing from the antitoxin; or, to be exact, about one ninth of it became free.

The mixtures prepared with one-tenth L + dose of toxin contained 0.0125 c.c. of toxin per cubic centimeter of mixture, or 6.25 minimal lethal doses. It therefore follows that if all the toxin in the mixture prepared with one-tenth L + dose should, after freezing, be freed, there would theoretically be in 1 c.c. of toxin-antitoxin mixture only 6.25 minimal lethal doses for guinea-pigs weighing 250 gm. each, which, weight for weight, theoretically, would be a fatal dose for a child weighing only 1,500 gm., provided guinea-pigs and child were equally susceptible.

From this it would appear that in mixtures prepared with one-tenth L + dose of toxin, even when using unconcentrated antitoxin, there could not be theoretically a sufficient amount of free toxin to cause more than a slight local reaction in a child, and that the use of such mixtures is without danger to human beings.

SUMMARY

Fifteen lots of diphtheria toxin-antitoxin mixtures containing three L + doses of toxin, prepared with a highly refined globulin in which 0.3 per cent. tricresol was used as a preservative, showed no increase in toxicity after freezing.

Eight lots of diphtheria toxin-antitoxin mixture, prepared with a highly refined globulin, containing one-tenth L + dose of toxin, 0.3 per cent. tricresol being used as a preservative, developed no increase in toxicity after freezing.

Mixtures of diphtheria toxin-antitoxin prepared as stated above became, on the average, less toxic after freezing.

Mixtures prepared with three L + doses of toxin, with 0.3 per cent. tricresol and made with an antitoxin that had been concentrated without the use of heat, showed an increase in toxicity after freezing.

Diphtheria toxin-antitoxin mixtures prepared with unconcentrated antitoxin with three L + doses of toxin, 0.3 per cent. tricresol or 0.5 per cent. phenol being used, increased in toxicity after freezing.

Diphtheria toxin-antitoxin mixtures similarly prepared, one-tenth L + dose of toxin being used, showed no increase in toxicity after freezing.

Diphtheria toxin-antitoxin mixtures prepared with unconcentrated antitoxin, with three L + doses of toxin, chlorbutanol or chloroform being used, or without preservative, showed no increase in toxicity after freezing.

Diphtheria toxin, after freezing at minus 5 C. for forty-eight hours, showed a decrease in toxicity.

In the mixtures prepared with unconcentrated antitoxin containing three L + doses of toxin, with tricresol as a preservative, and subsequently frozen, there became disassociated approximately twenty minimal lethal doses of toxin.

This free toxin was neutralized by the addition of diphtheria antitoxin or the simultaneous administration of antitoxin, so that acute death was prevented; but paralysis and local reactions sometimse developed.

CONCLUSIONS

In no instance was there found an increase in toxicity after freezing of mixtures of diphtheria toxin-antitoxin

made with a refined antitoxin or globulin, according either to the old or to the new formula.

Freezing of a three L + dose mixture of toxin-antitoxin containing 0.3 per cent. tricresol, prepared with an antitoxin concentrated without the use of heat, resulted in an increase in toxicity of the mixture.

Freezing of mixtures of toxin-antitoxin made with unconcentrated antitoxin and containing three L + doses of toxin, in which tricresol or phenol is used as a preservative, results in an increase in toxicity of the mixture.

Freezing of such mixtures in which chlorbutanol or chloroform is used as a preservative, or in which no preservative is used, does not cause an increase in toxicity of the mixture.

Only highly refined antitoxin or globulin should be used in the preparation of diphtheria toxin-antitoxin mixtures.

Mixtures of diphtheria toxin-antitoxin containing one-tenth L + doses should be the only formula permitted.

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LEAD POISONING IN CHILDREN

WITH SPECIAL REFERENCE TO PICA

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Pica, or parorexia, is a craving for unnatural articles of food—a depraved appetite. It has been observed in hysteria, chlorosis, insanity and pregnancy, but more particularly among children in the latter half of infancy, children from 1 to 2 years of age. It sometimes begins in later childhood when from any cause the general health fails, and the child becomes anemic.

Still [1] states that he has seen fourteen cases. In some of his cases, mud and mortar were especial favorites; in others, coal, cinders and gravel were preferred. In nine cases, the habit began in the second year of life; in one, it began at 8 months.

Thomson,[2] in a study of pica and its causes, divides this morbid craving in children into two groups:

1. Those instances in which the habit begins at any age, often associated with some marked deterioration of the general health (of which anemia is usually a symptom), and lessens or passes off as the general condition improves.

2. A larger group in whom the morbid craving develops in early infancy, as opportunity for its indulgence offers, apart from any very noticeable cachexia, and without anemia, passing off gradually in most cases, even if untreated, when the child is about 3 years old.

Patients in the former, or cachectic, class may be suffering from a variety of curable and incurable conditions, such as rickets, bronchitis, roundworms, apparently idiopathic anemia, malignant tumor, tuberculosis and other chronic maladies.

Koplik [3] believes that this peculiar condition in children is an exaggeration of the normal habit in young infants of invariably placing everything within reach in their mouths. In children who suffer from pica, the sense of wholesomeness is lacking, and they crave sand, dirt, gravel, cinders, wall plaster, paper, paint and other substances.

Although a child with pica craves many different types of things, it is very fortunate that most of these things are inert, and, although they occasionally lead to minor ailments, such as constipation, fissure-in-ano and other intestinal disorders, they do not cause any serious disturbance of the health of the child.

There is, however, one type of poisoning which these pica children acquire, and that is lead poisoning. This may easily be overlooked, because the average physician has never had his attention called to the fact, and also because the clinical picture is usually very different from that in similar poisoning in adults. There are many ways in which the child may acquire lead poisoning which the average parent could easily prevent.

Some children affected with pica have a morbid craving to gnaw painted objects, such as window sills, white furniture, crib railings, porch railings and other articles around the home within their reach. A child lives in a lead world.

There are many other ways in which lead may be introduced by mouth: in paint from toys; in buns and candies colored with lead chromate; in printers' type used as a plaything; in ointment of lead oxid (litharge), and in water and milk that have stood in lead receptacles. Or the child may become poisoned by improper medication, i. e., by taking lead acetate solution in treatment of poison oak; by sucking paint from the mother's face; by nursing after the use of lead ointment on the mother's breast, or by swallowing leaden objects, such as BB shot.

Holt [4] reported one case due to inhalation of dust that contained lead. He also stated that the number of authentic cases of lead poisoning in young infants was very small, although much has been written on congenital lead poisoning in extensive studies of the families of workers in lead, in which, in many instances, both parents were suffering from lead poisoning.

Before taking up the general discussion and symptomatology of lead poisoning in children, I shall report two cases, which have come under my observation during the last year:

REPORT OF CASES

CASE 1.—A boy, aged 3 years, normal at birth and always well except for nervousness, caused by irregular sleeping hours and careless parents, for six months previous to observation had complained of severe abdominal cramps associated with vomiting, loss of weight and appetite, listlessness, irritability, night cries, bed wetting and progressive anemia. The abdominal cramps were usually in the afternoon and evening, and were becoming more frequent.

The child had been observed by several physicians in their offices, and in one instance the diagnosis of appendicitis was made. The correct diagnosis, however, might have been made by any one who called at the child's home, because every bit of paint on porch railings, window sills, crib, bureau, chairs and even white enameled door casings, as high as the child could reach, had been gnawed off.

The child was fairly well nourished, and was pale and potbellied, but of normal height. There was a distinct lead line on the gums. The abdomen was relaxed, and no tenderness was elicited. The spleen was just felt. There was no paralysis.

The laboratory data were: white blood corpuscles, 15,400; red blood corpuscles, 4,000,000; hemoglobin, 50 per cent. A differential count was normal. There was no stippling, and the red cells showed only the usual evidence of a secondary anemia.

Lead was recovered from both the urine and the feces.

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1. Still, G. F.: Common Disorders and Diseases of Childhood, London, Henry Frowde, 1915, pp. 779-782.
2. Thomson, John: On Pica, or Dirt Eating, in Children, Edinburgh Hosp. Rep. 3: 81-94, 1895.
3. Koplik, Henry: The Diseases of Infancy and Childhood, Philadelphia, Lea & Febiger, 1918, p. 793.
4. Holt, L. E., Jr.: Lead Poisoning in Infancy, Am. J. Dis. Child 25: 229 (March) 1923.

As this child would not gnaw varnished objects, it was easy to remove the source of lead by refinishing the entire house; within two weeks, except for some anemia, the child was normal.

CASE 2.—A girl, aged 2 years, normally developed, who had always been well, during the last month had had three series of convulsions. The mother stated that the child gnawed the paint from the crib and the window sills, and had an uncontrollable desire to chew any painted object.

Examination was negative, except for a slight degree of internal strabismus of the left eye, which the mother had not noted before.

The red blood corpuscles numbered 4,520,000 per cubic millimeter; the hemoglobin was 60 per cent. No stippling was seen. No lead was found in the urine, but there were traces of lead in the feces on two examinations.

Since the source of lead has been removed, this child has made an uneventful recovery and is now normal.

SYMPTOMATOLOGY [5]

The history of the case is very important and may lead to an easy diagnosis after all other methods have proved failures. The appearance of the child is usually striking in the chronic cases of lead poisoning, on account of the degree of secondary anemia concomitant with it.

In the early cases, a change of disposition is often the first symptom noticed. The child becomes fretful, peevish and restless at night; the appetite becomes poor; the breath is foul, and frequently hemorrhages occur from the gums. The child may complain of pains in the epigastrium and the legs.

In chronic cases, the pains in the abdomen become continuous and more severe. Constipation is present. Vomiting is rare. There is usually a degree of anemia present, but occasionally the parents overlook all manifestations until the development of cerebral disturbances. Very few cases reported show the characteristic wrist-drop so common in adults, but paralysis of the cranial nerves, particularly the facial and motor oculi nerves, is common. Gibson [6] reported a group of eye symptoms, which he referred to as "plumbic ocular neuritis."

The temperature, as a rule, is normal except in the fatal cases and in those with cerebral disturbances, in which it may reach 105 or 106 F. before the death of the patient.

Of the various forms of cerebral disorders produced by lead, convulsive seizure is by far the most common. There is no way, however, to distinguish the convulsions due to lead poisoning from those due to other causes. All types of convulsions are seen. They may be local or general; they may be mild or severe. The convulsions do, however, have one characteristic, and that is that they are very persistent and are attended by a high mortality.

Colic has been more frequently observed than paralysis, but more common than either are irritability, restlessness and a blue line on the gums. It should be remembered, however, that a continuous lead line is seldom found. The characteristic appearance is the presence of minute black dots in the margin of the mucous membrane around the teeth, which are covered with tartar. It is difficult to see, and a hand lens should be used.

The blood picture, except for a secondary anemia, usually tells us nothing, although this is determined by the duration of the poisoning. If the disease has been present for some time, stippling of the red blood corpuscles may occur.

Direct evidence of lead poisoning is obtained by the demonstration of [7] lead in the urine and feces. There is, however, always a larger amount in the feces than in the urine, and it is often present in the feces when it cannot be demonstrated in the urine.

CLASSIFICATION INTO GROUPS

Because of the variability of the sensitiveness of children to lead, a classification into definite groups is difficult, and when made must be based largely on the severity of the predominating system.

Turner divides lead poisoning in children into four groups:

1. Paralytic cases showing symmetrical wrist-drop, foot-drop, spasm of the calf muscles and, as a secondary lesion, a persistent talipes equinus.

2. Cases characterized by pains in the abdomen and limbs, concomitant with habitual constipation, and occasionally a blue line on the gums. These children are usually irritable and neurotic.

3. Children suffering from ocular neuritis; viz., a neuritis involving the optic, oculomotor, abducens and trochlear nerves.

4. Eclamptic cases with severe and persistent convulsions, which often end fatally.

We are indebted to Australian observers for most of the literature regarding lead poisoning in children, and for an historical account of lead poisoning in the children of Queensland, from the first recorded cases in 1892 to 1917. A recent article [8] records the probable success of efforts to have an act passed prohibiting the use of white lead paint on veranda railings and outside surfaces within the reach of children's fingers.

TREATMENT

The treatment of this condition may be considered from three points of view:

1. Prophylactic. Careful supervision of children during the age (from 1 to 3 years) in which pica is most prevalent. Wide publicity and education through periodicals and home journals, in order to educate the parents.

2. Symptomatic. For the spasms, chloroform inhalation is the only agent that is efficacious; for the anemia, the various forms of iron and arsenic; for the local palsies, massage and electricity, and for the permanent palsies, surgery should be resorted to, if possible.

3. Medicinal. For the removal of lead from the system, potassium iodid, from 3 to 5 grains (0.2 to 0.3 gm.) three times daily with a morning purge of magnesium sulphate may be tried. This is the usual method, although in severe cases it is not well to give the iodids, since, according to some writers, the liberation of the lead that has been deposited in the tissues may increase the severity of the symptoms.

Gibson,[6] in 1919, reported successful treatment by the two-bath ionization system. The patient places both hands on an aluminum plate immersed in a salt solution, which is connected with the negative pole, and both feet likewise in a similar bath, which is connected with the positive pole. From 7½ to 8½ volts and 25

5. A complete description of the symptomatology of lead poisoning in children is given by Blackfan, K. D.: Lead Poisoning in Children, Am. J. M. Sc. 153: 877 (June) 1917.

6. Gibson, J. L.: The Diagnosis, Prophylaxis and Treatment of Plumbic Ocular Neuritis Amongst Queensland Children, M. J. Australia 2: 201 (Sept. 8) 1917; On the Importance of De-Ionization in the Treatment of Plumbism in Queensland Children, ibid. 1: 272 (April 5) 1919.

7. Considerable urine is evaporated to dryness, and 50 c.c. of fuming nitric acid is added; after the reaction has subsided, it is allowed to simmer over the free flame for one-half hour, and then 25 c.c. more acid is added three times each fifteen minutes. The fluid is then evaporated to a small volume, neutralized with sodium hydroxid, filtered and the lead tested with hydrogen sulphid, which will give a brown precipitate.

8. An Historical Account of the Occurrence and Causation of Lead Poisoning Among Queensland Children, M. J. Australia 1: 148 (Feb. 11) 1922.

milliamperes of current given for one-half hour, daily. The lead is deposited on the aluminum plate in the negative bath.

CONCLUSIONS

1. Pica is one of the most important etiologic factors in lead poisoning in children.
2. There are many mild cases of lead poisoning in children, manifested by spasms or colic, the true nature of which are never suspected.
3. Energetic prophylactic measures should be employed with children who habitually eat painted articles.
4. The feces and the urine should be examined for lead in all children with convulsions in which the etiologic factor is not clear.

1002 Pacific Mutual Building.

TRAUMATIC INJURY OF THE RECTUM

REPORT OF CASE *

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WASHINGTON, D. C.

In looking over the literature, including that at the Surgeon General's Library, on injuries to the rectum, I have been unable to find a case similar to the one reported here. Gant epitomizes sixty-four cases that fell under his personal observation. These may be classified as:

1. Those due to injury from foreign bodies, either during instrumentation or as result of accident. Among these, fish-hooks, gunshot wounds, falling on palings or stabs, and use of the speculum and dilators play a conspicuous part.
2. Rupture of the sphincter due to pederasty, or of the perineum during parturition. Rupture of the recto-vaginal septum during copulation.
3. Rectovaginal rent induced by rectal distention with an air-filled rubber bag.
4. Perforation of the rectum by foreign bodies left in the abdomen.
5. Ulceration due to phenol (carbolic acid) or turpentine.

Fig. 1.—Muscles in front of the rectum torn and retracted, with the latter practically intact.

The anatomic structures most usually affected are the rectum or sigmoid, urethra, one or both sphincters, the levator ani muscle, and the rectovaginal septum. Only in one case was there mention of any injury to the bony structure, and that was when the coccyx was fractured as the result of a kick during a fight.

The unique features about the case reported here are that all the muscles about the rectum were torn and retracted, leaving the intestine intact; rupture of the urethra, and fracture of the descending ramus of the pubes.

REPORT OF CASE

L. S., a colored boy, aged 4 years, while riding on the running board of a truck, Aug. 11, 1923, was thrown as the truck entered an alley, and crushed between it and the side of a brick wall. He was brought soon afterward to the emergency hospital. The pupils were equal and reacted to light and in accommodation. The tongue was coated. The teeth and gums were in good condition. The tonsils were slightly enlarged, but the pharynx was otherwise normal. There were several palpable cervical glands. The chest was firm, and expansion was good and equal on the two sides. The percussion note was resonant throughout. The breath sounds were clear. The heart was not enlarged, but there was a soft systolic murmur at the apex not transmitted to the axilla. The abdomen was slightly distended and tender in the region of the bladder. About the rectum, running anteriorly, there was a laceration, which seemed to go through the sphincter. There was much bleeding, some of which appeared to come from high up in the rectum. An attempt was made to pass a catheter, but this was unsuccessful and only a little blood was obtained. On further examination it was found that the laceration at the rectum included both sphincters and part of the perineal raphe. The finger could be passed upward anterior to the mucous membrane of the bowel, and the sharp edges of the broken ramus on the right side could be felt. Also the urethra was torn in this region, and urine was passed through the opening. Whenever the patient's legs were moved in any way, he experienced great pain in the region of the symphysis. Once when we were moving the patient, the whole pelvis was seen to rock irregularly, and definite crepitus was obtained. There was no evidence of injury to the extremities.

Fig. 2. — Muscles being sutured over the rectum en masse; area between sutured muscle and skin packed lightly with gauze (not shown).

The patient was sent to the operation room. Under general anesthesia, and with the patient in the lithotomy position, a more thorough examination was made. The rectal tube was found practically intact, but the muscles anterior to it were torn and retracted on both sides so as to appear only laterally, and retracted far back toward the posterior surface. The rough edges of the fractured descending ramus of the pubes could be felt. The opening in the urethra was not made out. The torn sphincter muscles and the levator ani were brought together over the midline anteriorly and sutured with chromic catgut. This procedure was facilitated by keeping one finger in the rectal tube. The area above this was left open, and a small amount of packing was placed in the space for drainage and to control oozing. A cast was applied from the knees to the costal margin.

Dr. Groover reported that examination of the lumbar spine, pelvis and hips showed the presence of a dislocation of the right innominate bone, with a fracture of the descending ramus of the pubes on the right side; the pubic symphysis was separated approximately 1 inch and there was, of course, necessarily some compensatory damage in the sacro-iliac joints.

The following day the patient seemed a little better, though very restless. There was some abdominal distention, and he complained of the cast being too tight. This was loosened. There was copious drainage of pus from the peroneal wound, and the temperature rose to 102.2 F. He voided involuntarily and through the urethral rent. Two hundred cubic centimeters of physiologic sodium chlorid solution was given by hypodermoclysis. August 14, he had an involuntary defecation. He had a frequent desire to urinate by the normal route, but without success. August 28, or seventeen days after admission, there were some signs of the patient's regaining control of the bowels, but the urethral fistula persisted.

* Read before the Virginia, Maryland and District of Columbia Medical Society, Dec. 5, 1923.

September 10, Dr. Fowler, who was looking after the urethral fistula, found an opening just in front of the rectum, about 1.5 cm. in diameter. The skin was beginning to grow into the opening. Pressure on the perineum forced a creamy, purulent material into the opening. A probe could be introduced for 8 or 10 cm., passing anteriorly upward until its tip could be felt under the skin of the scrotum at the root of the penis. The patient stated that he had the same feeling before urinating as before the accident, but on attempting this, the urine passed by way of the peroneal route.

The patient left the hospital, October 15, sixty-five days after admission. The cast was removed after being on about one month. In spite of the involuntary passage of urine and feces, no sore developed under the cast, owing to the good care taken by the nurses. At the time of discharge he had good control of both sphincters, but walked with a limp as a result of the fractured pelvis.

COMMENT

In spite of the fact that considerable damage was done to the bony pelvis in this case, there was little or no disability. Recently I saw the boy running and playing with his friends as if nothing had happened. This emphasizes the point that Dr. Foley brought out last year before the District of Columbia Surgical Society: Those suffering from what we frequently speak of as sacro-iliac synchondrosis or dislocation often show no deformity on roentgenographic examination, though they may complain severely of pain referable to the joint or sciatic nerve, while others, whose pictures show a marked deviation from the normal, have no symptoms. It is difficult to see how so much damage was done to the peroneal muscles since they are so well protected by the pelvic arch. It is likely that the force was applied in an anterior-posterior direction and the

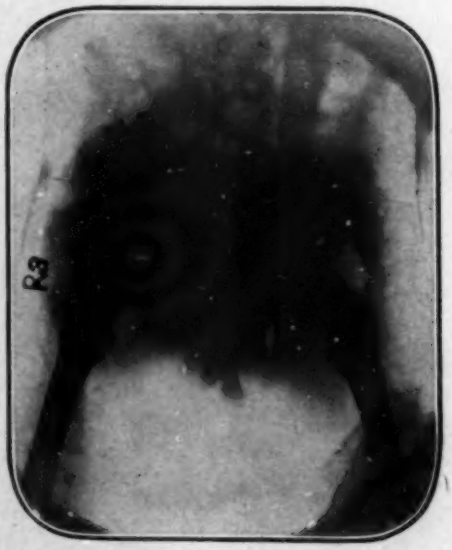

Fig. 3.—Dislocation of the right innominate bone, with fracture of descending ramus of pubis on right side; separation of symphysis approximately 1 inch, and compensatory damage to sacro-iliac joints.

symphysis made to approach the coccyx. This would put the transverse peronei and the levator ani on the stretch and, as the transverse diameter widened, cause this rupture.

1015 Sixteenth Street NW.

The Carrion Monument.—Each of the American republics is to present a stone to be used in a monument to Daniel A. Carrion, the medical student at Lima who gave his life to settle the question of the identity of Oroya fever and Peruvian verruca. Cuba has already dispatched a large, nearly square marble, appropriately inscribed, as its contribution.

THERAPEUTIC PNEUMOPERICARDIUM IN PERICARDITIS WITH EFFUSION *

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ATLANTA, GA.

The institution of therapeutic artificial pneumopericardium in the treatment of pericarditis with effusion has received scant attention. Emile-Weil and Loiseleur,[1] in 1916, reported a case of tuberculous peri-

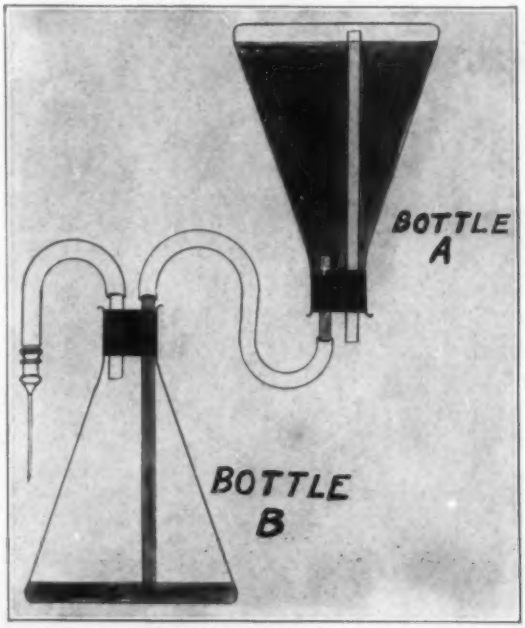


Fig. 1.—Apparatus used to inject the air into the pericardial sac. Inverting Bottle *A* causes the water to run over into Bottle *B*, thus forcing the air out through the connecting tube into the pericardial sac.

carditis with effusion which they treated by aspiration of the fluid and the injection of air. In all, six aspirations were made, the last five of which were followed by air injections. They noted a marked strengthening of the general condition of the patient—a child of 14—and what they thought were improvements in the pericardial condition; namely, a reduction in the amount and rapidity of exudate formation and a change in its character from a serosanguineous liquid to one of clear straw colored appearance. They were able, also, by the use of air injections, together with the fluoroscope, to find pocketed or encysted fluid within the pericardial sac which had not emptied on aspiration, and to drain these. In 1917, Meyer [2] reported a case of pericarditis with effusion, which he treated with aspiration followed by the injection of nitrogen gas. Marked clinical improvement was observed. The greatest benefit came about when the volume of gas injected approached the volume of exudate removed. Castex [3] reported a case of pleural and pericardial tuberculosis. Three injections of oxygen were made in the pericardial sac, each giving increased relief to the patient. The formation of adhesions prevented continuation of treatment.

* From the Department of Medicine, Emory University School of Medicine.

1. Emile-Weil, P., and Loiseleur: Contribution à l'étude de la péricardite tuberculeuse; insufflation d'air dans le péricarde; pneumopéricarde et hydropneumopéricarde artificiels, Bull. et mém. Soc. méd. d. hôp. de Paris **40**: 1715-1730, 1916.

2. Meyer, A.: A Case of Artificial Pneumocardium, M. Rec. **93**: 38, 1918.

3. Castex, M. R.: Le pneumopéricarde thérapeutique, Bull et mém. Soc. méd. de hôp. de Paris **47**: 545-547 (April 13) 1923.

Of all the serous cavities, the pericardial sac is unquestionably the one in which the mechanical disturbance of an exudation will be most distressing and most dangerous, for it offers an embarrassment to the most vital of all organs, the heart. Owing to the physical

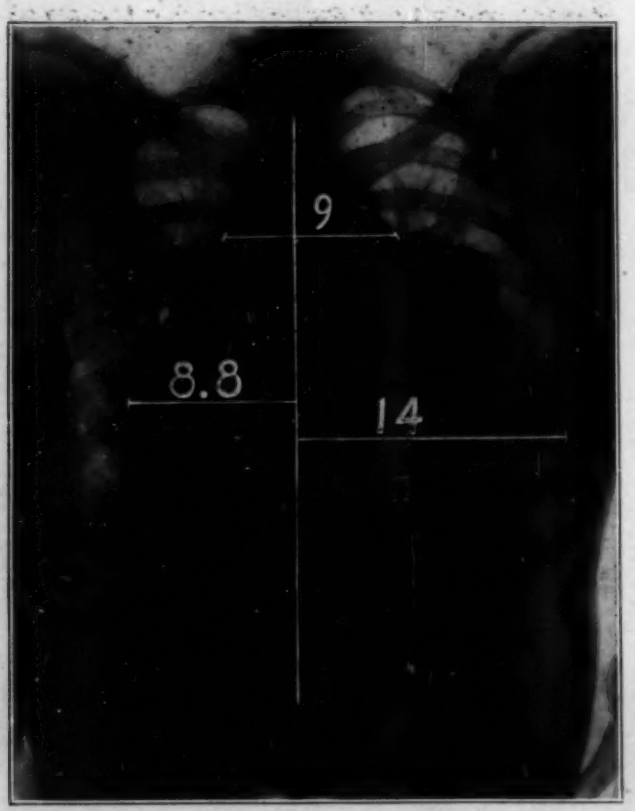


Fig. 2.—Condition of patient on entrance: shadow of extreme width at level of great vessels (second intercostal space); pericardial sac in contact with thoracic wall on left, extending beyond midclavicular line on right; no heart sounds or pericardial rub.

properties of a liquid, an exudate within this sac is incompatible with either an easy or an efficient cardiac action, for it is heavy and incompressible, and it does not lend itself to the rapid change in the size, shape and position of the heart that occurs with systole. When present in large amount over an extended period, it must therefore result in a gradual failure of the myocardium. Air or any gas, on the other hand, is light and compressible and offers little, if any, resistance to the movement of the heart. Thus, from a mechanical standpoint alone, the replacement of a pericardial effusion with air should result in a most profound relief of the cardiac embarrassment.

It is probably true that an inflammatory exudate thrown out between two serous surfaces serves to prevent the irritation that would arise when these surfaces move against each other. Often, however, the quantity of the effusion is such that its value is overshadowed by the mechanical burden that it imposes.

The ultimate hope in any type of pericarditis with effusion is in securing resolution of the inflammatory process and absorption or withdrawal of the exudate. Our efforts are to accomplish this in the shortest time and with the least danger or discomfort to the patient.

In the case reported here, the injection of air, following the drainage of the pericardial sac, was used with the thought that: (1) the air would serve to keep apart the inflamed surfaces, thus preventing the formation of adhesions; (2) relief would be obtained from the embarrassment of a voluminous exudate, while the air would temporarily maintain the pericardial distention and allow it gradually to contract as the air was absorbed; (3) there would be delay in the reformation of the exudate, this being brought about by the tendency of the air to maintain the pressure that has been exerted by the fluid; (4) in this instance, the process being tuberculous, the air might have some effect in hastening the termination of the inflammation, a fact that has been observed at times in tuberculous peritonitis.

REPORT OF CASE

History.—A male negro, aged 23, was seen in the emergency clinic, to which he came for the relief of abdominal pain and shortness of breath. The onset of the trouble could not be well elicited. As is often true with the negro, his remembrance of the symptom development extended back only to the time when he first noticed decided interference with his habits of life. In this instance, the man, being a truck driver, noticed two weeks previously that he became a little short of breath when loading or unloading his truck. This grew rapidly and steadily worse. At first he attributed his trouble to his smoking a large number of cigarets. He discontinued their use, however, without relief. Within a period of seven days he was forced to give up his occupation and to remain at home. By the tenth day he had become unable to move about without great discomfort, and he noticed a heavy, dull, aching sensation in the right upper abdomen. When he finally came to the clinic,

Fig. 3.—Condition immediately after first paracentesis, at which 690 c.c. of fluid was removed: The decrease in the cardiac shadow is easily seen, especially at the level of the great vessels; there is much less upward bulge to the pericardium; intense pericardial friction rub over entire precordium; heart sounds audible, but masked by the friction.

approximately two weeks after the onset of the trouble, he stated that he had had practically no sleep for three days, that he was unable to lie flat in bed, and that he was suffering great abdominal distress.

This brief sketch contains practically all the information that could be obtained. Up to the present, he had always enjoyed good health and had worked hard. The past history presented nothing that might bear any relation to the patient's present condition.

Physical Examination.—The patient was well developed and well nourished; his weight was 135 pounds (61 kg.). He was orthopneic, the respirations being rapid, short and gasping. The mucous membranes were cyanotic. The left chest seemed fuller than the right, and had the smooth, rounded appearance commonly seen in hydrothorax. There was decided limitation of motion of the left chest on respiration. No cardiac impulse could be seen at any place, nor could an impulse be felt. On percussion, the cardiac dulness extended to the inner nipple line on the right and to the posterior axillary line on the left, the outline having the usual triangular shape of a pericardial effusion. Auscultation revealed only a faint, distant rumble over the sternum, at the level of the second intercostal space. No heart sounds could be heard elsewhere. The lung examination showed a general harshness of the breath sound, while over the hila and apexes posteriorly were found crepitant râles and breath sound changes suggesting a moderate pulmonary infiltration.

Fig. 4.—After second treatment; drainage of 690 c.c. of fluid and injection of 50 c.c. of air; the air that occupies a small portion of the pericardial sac at the extreme base should be noted, where it has risen from the point of injection at the fifth intercostal space; friction rub intense, heart sounds strong.

The abdomen was smooth and tense. There was marked tenderness over the right upper quadrant. The liver was palpable at the level of the umbilicus. There was no edema. The systolic blood pressure was 105; diastolic, 60; temperature, 100.4; pulse, 90; respirations, 26.

The working diagnosis was of pericardial effusion, and cardiac decompensation, with passive congestion of the lungs and liver.

Owing to the weakened condition and the three days' loss of sleep, it was thought advisable to postpone paracentesis until some rest had been secured. For this purpose morphin sulphate, one-fourth grain (0.016 gm.), with atropin sulphate, one one-hundredth grain (0.00065 gm.), were given by hypodermic injections, which resulted in several hours of sleep. The patient awakened feeling much better and much strengthened.

Fig. 5.—Third treatment: 800 c.c. of fluid removed and 420 c.c. of air injected; there is a horizontal fluid level, the air being above; the parietal pericardium is well separated from the visceral pericardium; no friction rub; heart sounds clear, but somewhat distant.

Fig. 6.—Five days after third treatment; there has been some absorption of air and reformation of fluid.

For comparative purposes, a teleroentgenogram at a distance of 7 feet was taken. All subsequent pictures were made at the same distance. Paracentesis of the pericardial sac was then performed, a lumbar puncture needle being inserted through the fifth intercostal space 1 inch from the left sternal border. When the pericardial sac was reached, the fluid was allowed to siphon off into a sterile flask through a soft rubber tube equipped with an adapter fitted to the puncture needle. In this way, 690 c.c. of dark red, bloody fluid was removed, taking altogether about forty-five minutes. The same technic was followed in all subsequent paracenteses. In all, the pericardium was tapped five times. The last four were followed immediately by the injection of air. The air was introduced by means of two flasks fitted with two-holed rubber stoppers. One of these bottles was filled with water; the other contained only air. These were so arranged that on inverting the first bottle the water ran into the second bottle, thus forcing the air out and through a connecting rubber tube into the pericardial sac.

Tubercle bacilli were found in the fluid aspirated from the pericardium. Following the relief of the passive congestion of the lungs, signs of pulmonary infiltration remained and tubercle bacilli were demonstrated in the sputum. The diagnosis was then changed to a moderately advanced pulmonary tuberculosis with a tuberculous pericarditis with effusion.

The first paracentesis of the pericardial sac was done, Dec. 31, 1923. At this time 690 c.c. of fluid was withdrawn. This was attended by the appearance of a harsh to-and-fro friction rub coincident with the heart beat. It could be heard over the entire precordium. The improvement in comfort and lessening of dyspnea were pronounced, the friction rub apparently not causing the patient any distress. Another teleroentgenogram was then taken and, by comparing this with the one taken

Fig. 7.—Fourth treatment: 800 c.c. of fluid removed and 500 c.c. of air injected; the air occupies a much greater portion of the pericardial sac (fluid level lower); there is no pocketing of fluid; no friction rub; heart sounds similar to those after third treatment.

previously, we could see the reduction in the cardiac shadow. This was best noticed by measurements of the median right and the mediant left diameters, and the width at the level of the great vessels.

By the fourth day, Jan. 4, 1924, the friction rub had completely disappeared and the dyspnea again became distressing. Paracentesis was therefore repeated, 800 c.c. of fluid being removed. Without withdrawing the needle, we injected 50 c.c. of air. A roentgenogram was then made which showed

Fig. 8.—Immediately after fifth treatment: The air occupies almost the entire pericardial sac; little fluid can be made out; no pericardial friction rub; heart sounds clear, of good quality but distant.

this air held in the upper portion of the sac. As before, a coarse friction rub appeared, the heart sounds became more audible, being of fair volume (though somewhat masked by the friction rub) and without demonstrable murmur. Relief from this puncture again lasted only four days, and on January 8 the third paracentesis was performed. At this time, 800 c.c. of exudate was withdrawn and 420 c.c. of air injected. The friction rub that recurred on drainage of the fluid was found to disappear entirely on the injection of the air, and the heart sounds became distant and indistinct. Where there had been pronounced improvement following the first two drainages, the improvement following the injection of this larger volume of air was striking.

The patient remarked that he "felt a great deal better," and he asked to be allowed to get out of bed. It was found, in addition, that the improved condition was sustained for a much longer time, an interval of ten days (to January 18) passing before the fourth drainage and air injection were done. Dyspnea had by then returned. During the fourth treatment, 800 c.c. of exudate was removed and 500 c.c. of air injected. The resulting improvement was even more marked and more lasting, the fifth treatment being given fourteen days later, February 1. This was not, in fact, necessitated by the condition of the patient, but was done as a therapeutic measure solely because of the benefit derived from those preceding it. Only 500 c.c. of fluid could be withdrawn at this tapping, and this was replaced by 500 c.c. of air. The teleroentgenogram taken afterward shows that the air occupied a much larger portion of the pericardial sac. This indicated a reduction in the rate of exudate formation.

By January 29, that is, before the last treatment, it was impossible longer to keep the patient in bed, and he was permitted to walk about the ward. Shortly after this, he began

insisting that he go home, which he was allowed to do, February 2. At that time he felt well and strong, and was not suffering from any discomfort or dyspnea on ordinary exertion.

It has been impossible to locate the patient since he left the hospital.

One complication developed during the course of his stay in the hospital, which was a friction rub, first noticed, January 28. One hypodermic injection of morphin sulphate was given for the pain. A small effusion followed this pleurisy, which was still present on the dismissal of the patient.

The accompanying teleroentgenograms serve to show the enormous size of the pericardial sac and the reduction of size secured by drainage. Naturally, the greatest difference is to be noted at the level of the great vessels, because of the tendency of the remaining fluid to gravitate to the apical region. This factor also influences the lessening of the shadow to the right of the sternum. Where the air is present, the size of the heart in comparison with the entire mass can be made out, as can also the magnitude of pericardial distention produced by the exudate. There seems to have been some increase in the size of the heart, indicating a cardiac hypertrophy.

CONCLUSIONS

Though it may not be justifiable to draw conclusions from a single case, the following observations seem worthy of consideration:

1. The production of an artificial pneumopericardium following drainage is without danger or discomfort.

Fig. 9.—Five days after fifth treatment: The reformation of exudate is proceeding slowly.

2. The injection of air gives even greater relief than aspiration of the exudate alone.

3. The presence of air delays the reformation of exudate, and postpones the necessity for repetition of drainage.

4. By holding apart the two layers of the pericardium, we tend to prevent both friction and the formation of adhesions.

5. The pneumopericardium permits us by roentgen-ray examination to see how completely the exudate has been evacuated. When guided by the fluoroscope, the exudate can be entirely removed, and pocketed collections of exudate emptied.

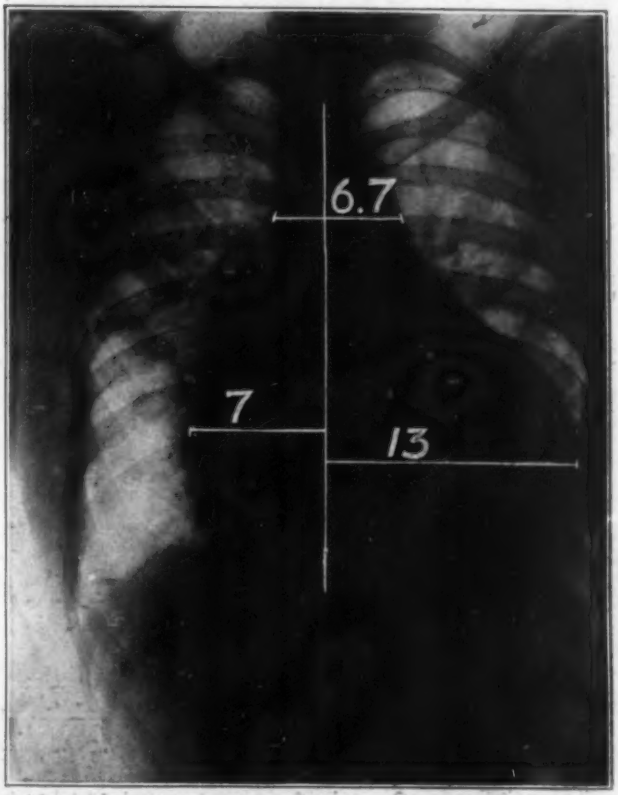


Fig. 10.—Appearance on day of departure from hospital: All air has been absorbed; diminution of cardiac shadow can be made out by comparison with Figure 2; no pericardial friction rub; heart sounds audible at all the usual points.

94 North Butler Street.

Clinical Notes, Suggestions, and New Instruments

APPENDICAL CONCRETIONS SIMULATING URETERAL CALCULI

ERNEST G. MARK, M.D., KANSAS CITY, MO.

It is not unusual for the urologist to call the attention of the general surgeon to the numerous cases of ureteritis or ureteral stone in which operations are performed under the diagnosis of appendicitis. The opposite is, I believe, quite uncommon. It is for this reason that I report a case in detail.

H. H. M., a man, aged 44, married, an extracting dentist, who came under my observation, Oct. 6, 1923, had been operated on for a right inguinal hernia under local anesthesia, about the middle of the preceding August. Following this operation he developed a retention which required catheterization. On the seventh day after his first catheterization he developed a sudden rise in temperature unaccompanied by chill. There was no infection of the herniotomy wound. This rise in temperature was accompanied by a severe burning sensation in the urethra. The pain continued to become

more severe, being referred entirely to the urethra, and was relieved only by applying hot, moist applications to the penis and perineum. September 11, dysuria became so pronounced as to require opiates for a week. There was at this time a fair amount of pus and blood in the urine.

Fig. 1.—Two stones apparently in the course of the right lower ureter.

Following this dysuria, which became intermittent, the patient developed hemorrhoids, for which he was operated on, October 2. Following this operation, the dysuria became much more pronounced, and the bladder was lavaged by catheter several times. The urinary disturbance became much worse, and he was entered in Research Hospital, October 6, for observation.

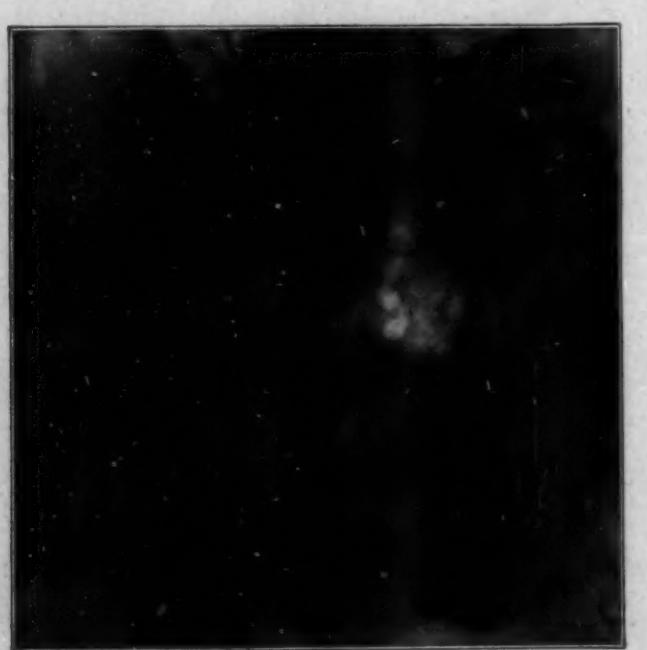


Fig. 2.—Change of position of the two stones following manipulation with the ureteral catheter: They are apparently outside the ureter.

At the time of my seeing him, he presented the symptoms of dysuria spoken of heretofore, spasmodic in character and extremely severe. No attempt was made to apply local treatment. He was placed on alkalis, bromids and some codein, with the result that within the next few days he was so greatly relieved that he was able to be out of bed and around.

The physical examination was entirely negative except for the scar of the recent herniotomy. There was a slight exaggeration of reflexes, but no more than was to be expected in the patient's highly nervous state. He was well nourished and well developed, and appeared to be in the best of health. There was no pain or tenderness in either renal region or along the course of the ureters. There was no tenderness over McBurney's point. In fact, the entire abdomen was negative to examination. The deep ganglions were not tender.

The history revealed no disturbance of a gastro-intestinal nature, no pain at any time in the appendical region, and no renal colic. The patient had had the ordinary diseases of childhood, but even the most careful questioning failed to elicit either from him or from his family anything that might point to the gastro-intestinal tract.

The urine still showed some pus and some blood cells. October 10, he was referred to the roentgen-ray department for pictures of the urinary tract, which showed apparently two stones in line with the right lower ureter. October 13, cystoscopy was performed with a roentgen-ray ureteral catheter, and these concretions appeared to be outside the ureter. However, the right ureteral orifice was quite edematous, and the ureteral catheter met definite obstruction just within the orifice. The catheter "jumped" by the first obstruction, met a second obstruction just above, and "jumped" by this in the same manner. In spite of our roentgen-ray findings, we were inclined to believe that these stones were in the ureter on account of the obstruction met by the catheter and on account of the appearance of the ureteral orifice and the findings with the ureteral catheter, the urine showing a few pus and blood cells. While hard to conceive, it was nevertheless determined that these stones lay in a diverticulum of the lower third of the ureter. As apparent further proof that these concretions were in the ureter, repeated cystoscopies caused these stones to change position. Stereoscopic plates with the ureteral catheter in place showed them to be apparently on the same plane in the pelvis as the catheter. Injections of sodium bromid into the lower ureter apparently confirmed our diagnosis of stones in the lower third of the ureter. While cystoscopy revealed no diverticulum of the bladder, and the position of the stones, as shown in the roentgenograms, was practically sufficient to exclude their presence in

Fig. 3.—Change again in the position of the stones with sodium bromid solution filling a dilated lower ureter and stones apparently in this dilated portion; arrow points to bromid in dilated ureter.

a diverticulum, a cystogram also was made to rule out such a possibility.

In view of our findings, it was determined to do a transperitoneal exposure of the ureter after the method of Farr, modifying this operation to a slight extent. This was done, October 18. Before the patient was taken to the operating room, a ureteral catheter was placed in the right ureter to identify this structure readily rather than to watch for the peristaltic wave of the ureter. An incision was made from above the umbilicus slightly to the right and almost to the pubis, the patient being in marked Trendelenburg position. The viscera fell away into the upper abdomen, and the ureteral catheter could be readily felt against the posterior peritoneal surface with two stones apparently in the ureter. Some difficulty was encountered in freeing the cecum, and, much to our surprise, a long, thin appendix came away, having in its tip two large concretions. The tip of the appendix was adherent to the posterior peritoneum immediately over the ureter. Simple appendectomy was done. The patient made an uneventful recovery, leaving the hospital on the ninth day without recurrence of symptoms.

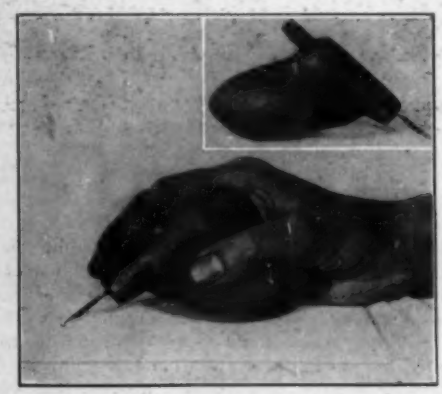
1010 Rialto Building.

A DEVICE FOR THE RELIEF OF WRITERS' CRAMP

REGINALD H. SAYRE, M.D., NEW YORK

For years, various mechanical devices have been tried for the prevention of writers' cramp in those who have to write constantly. In one of the New York Sunday papers there recently appeared a picture of Paul Vosburg, a German inventor, using what was described as "blocks of wood" for this purpose. I have seen molds of dental wax used, but their weight is a serious objection. Miss Keenly, the clerk in my clinic at the University and Bellevue Hospital Medical College, was very much troubled with pain in her right arm and hand whenever she had much writing to do, and after experimenting with various methods to relieve her hand from cramp, had the apparatus made that is shown herewith. It has afforded relief to her.

Miss Keenly made the original model by holding a wet plaster-of-Paris bandage in her hand, thus getting an accurate mold of her palm and fingers in the writing position that was most comfortable. Through this plaster-of-Paris model she



Device for relief of writers' cramp.

thrust a lead pencil. With this as a guide, a mold of willow wood of similar contour was made in the artificial limb department of the Institute for Crippled and Disabled Men. The mold was hollowed out in the center, for lightness. The pen or pencil, which passes through the body of the block, is retained in position by wrapping a few turns of rubber band around the pen or pencil where it projects at the top and at the bottom. The entire apparatus, pencil and all, weighs slightly more than 1 ounce, although it is large enough to fill the hand with the fingers only slightly flexed.

In the use of this apparatus, hand and finger motion is eliminated, the patient's hand or the lower end of the wooden mold sliding along the paper, while elbow and shoulder motion are employed in writing.

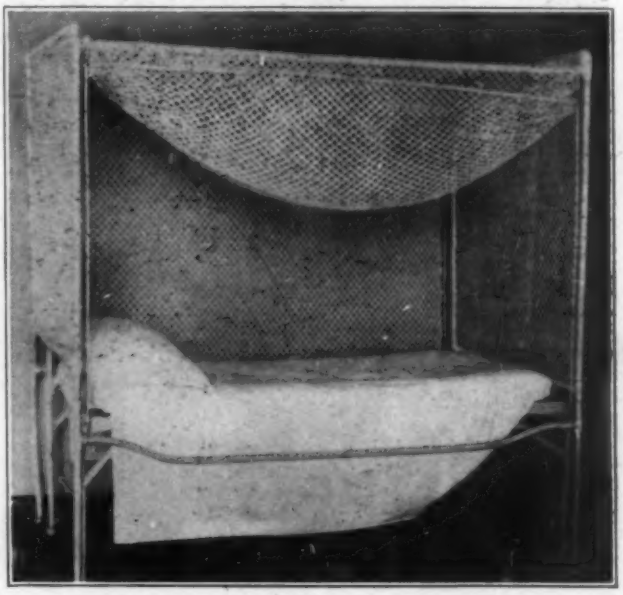
The device could probably be made by any competent woodworker or a maker of artificial limbs, following a plaster-of-Paris model from a patient's hand.

14 West Forty-Eighth Street.

MOVABLE FRAME FOR PROTECTING DELIRIOUS PATIENTS

M. A. REASONER, M.D., NEW YORK
Major, Medical Corps, U. S. Army

In the spring of 1922, there was constructed at the medical supply depot, Coblenz, Germany, a movable frame with netting for the purpose of enclosing a bed. It was based on a descrip-



Movable frame for protecting delirious patients.

tion given by Dr. H. C. Michie of a similar device he had seen in a hospital in Vienna. It was in use at the Station Hospital in Coblenz until this place was given up, and then forwarded to the Walter Reed General Hospital.

As will be seen from the illustration, it consisted of an iron frame large enough to fit around and over a hospital bed. It had plenty of head room, and was covered with a heavy netting. This device serves effectually to restrain a patient with purposeless delirium without the constant services of an attendant. With the closed frame in place, it is impossible for such a patient either to get out or to fall out of bed or to injure himself seriously.

The services of a netmaker were secured to construct the netting, since it must be heavier and stronger than the netting ordinarily available. A cord similar to window cord but only from 1/4 to 5/32 inch in diameter was secured for the purpose. It was found best to make the frame first and allow the netmaker to build the net to the frame.

This particular frame was constructed of 1 inch galvanized iron pipe, and no difficulty was found in the construction. It was mounted on castors so that it could be readily moved from place to place. The lower crossbar at the head was so arranged that it could be elevated sufficiently to permit the headpiece of the bed to pass under. It would perhaps be simpler to have this portion of the frame rigid and lift the frame the 6 or 8 inches necessary to pass over the headpiece.

At least one side must be made to allow easy and full access to the patient. For this purpose, two solid rods were run parallel and close to the corner posts of the frame and attached at the top and bottom. On these, two vertical rods slipped up and down the horizontal rod, to which, was attached the lower edge of this side wall of the netting. Many ways

might be devised to hold this horizontal rod in position either when raised or when lowered, but it is believed that a central movable hook is about as simple and satisfactory as any.

39 Whitehall Street.

IMPROVED HODGEN'S WIRE SUSPENSION SPLINT

W. W. NAUTH, M.D., WINONA, MINN.

This splint was devised to facilitate the more or less daily adjustments necessary in this kind of apparatus.

In the regular Hodgen's splint, the adjustments of the swathes on which the leg is suspended is accomplished with safety pins.

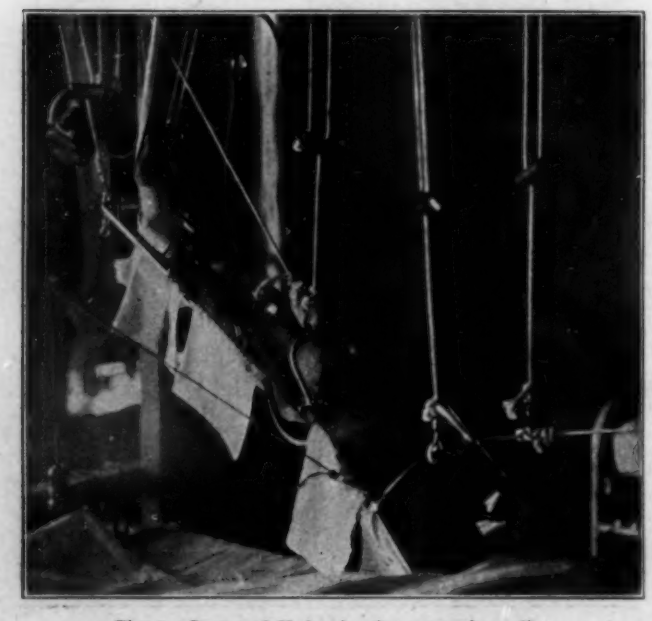


Fig. 1.—Improved Hodgen's wire suspension splint.

The improvement consists of a row of pins, placed about three-fourths inch apart, along the edge of and on each side of the entire splint, set at an angle to insure holding the swathes under tension.

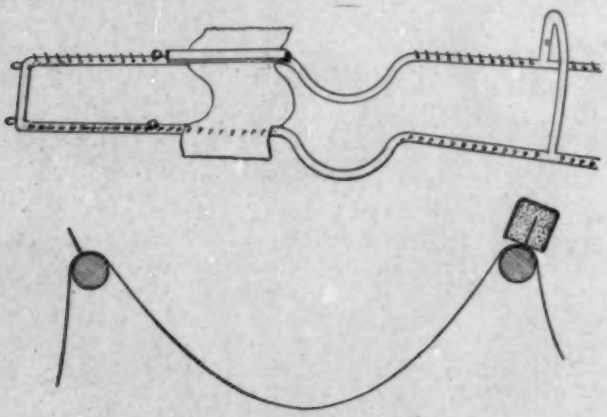


Fig. 2.—Details of splint.

Ordinary phonograph needles are used for the pins. The holes are drilled a fraction larger than the needles, and to a depth of about one-fourth inch. The needles are dropped into the holes, and the soft steel is set round them by a sharp edged tool; they are fastened securely. To prevent tearing and scratching of the physicians and attendants, channels are made by a tinsmith, one-half by one-half inch, and as long as practical, and two layers of strip cork, such as is used by automobile mechanics for gaskets, are glued into them. After adjustments have been made, the cork channels are pushed down over the rows of projecting pins, fastening them solidly.

The swathes are set into the row of pins on one side and pulled under the leg and over the edge of the projecting pins on the opposite side, suspending the leg in the regular manner.

It will be found that, in combination fractures of the thigh, patella and lower leg, this mode of adjusting the swathes is both practical and of great convenience to the surgeon, and also of great comfort to the patient, because of the accurate adjustments that can be made.

THIRD CASE OF MYCETOMA

GUSTAV A. PAGENSTECHER, M.D., SAN ANTONIO, TEXAS

In 1922 I[1] reported two cases of mycetoma. Since then I have seen a third: A married Mexican woman, aged 36, born in Guanajuato of parents who were born and lived there, resided in Mexico until 21, when she moved to Lockhardt, Texas, and engaged in farm labor. Five years after coming to Texas, while picking cotton she fell and injured her right foot in the region of the lateral aspect of the ankle, and from this injury she dates the onset of the disease. The injury did not break the skin, and there was no visible evidence of injury.

Appearance of foot affected with mycetoma.

Two months after the injury, the patient's foot began to swell and pain her. These symptoms had been progressive since that time. After two years of gradual swelling, nodules appeared on the dorsum of the foot, and two years after the nodules appeared, the sinuses made their appearance in the center of the nodules, discharging the characteristic serosanguineous pus. The patient noticed that many small white granules escaped from the sinuses with the pus at frequent intervals.

Six months after the onset of the disease she sought medical aid. The physician gave the patient no diagnosis, but put her to bed, where the swelling and pain became greater. She noticed no systemic effect, and aside from the gradual progressive impairment of function of the right foot, she noticed only swelling and pain. The pain was most severe when the sinuses were open and discharging. Motion and pressure did not increase the pain.

The patient stated that the sinuses periodically opened and discharged, and, in turn, closed only to open at some later date. She stated that she had always worn high shoes until the swelling of her foot became so large that this was not practicable.

A general physical examination showed the patient to be normal except for her right foot, which was enlarged to about twice its normal size. The enlargement was confined to the dorsal, lateral and medial aspects in the region of the ankle joint. The skin covering this enlargement was discolored,

1. Pagenstecher, G. A.: Madura Foot, More Properly Called Mycetoma, J. A. M. A. 78: 1363 (May 6) 1922.

shiny, brawny and indurated. There were thirteen open sinuses, and about five that were covered with a thin layer of epidermis. Five were on the lateral aspect, two on the dorsum, five on the medial aspect and one on the plantar aspect. The toes and distal portion of the foot were not involved, and the patient had perfect function of her toes as well as of her ankle joint. There was no pain on pressure, and motion of any joint caused no pain. A roentgenogram showed: an early rarefactive and productive osteitis. The blood count revealed: red blood corpuscles, 3,936,000; white blood corpuscles, 6,400; polymorphonuclears, 73 per cent.; lymphocytes, 21 per cent.; large mononuclears, 4 per cent.; transitionals, 1 per cent.; eosinophils, 1 per cent. The urine was amber and cloudy, and slightly acid. The specific gravity was 1.024. There was an albumin ring. Tests for sugar were normal. There were many pus and epithelial cells. The Wassermann reaction was negative. The pus, which was easily collected, showed small white granules about 2 mm. in diameter, slightly egg shaped. The exudates showed pus cells with an abnormal amount of serum and the typical bodies.

Microscopic examination of the bodies showed a central clear zone that had many branching, mycelial threads, each segment of which had a nucleus. The fresh tissue stained with eosin readily, and showed a central clear zone with the red branched threads.

April 3, 1923, I amputated the leg at the junction of the middle and lower third. Three months later the patient was given an artificial limb, and she has been able to get about a great deal better than she could with the diseased member. I believe that, from an economic point of view, an early amputation in this infection should be done. Up to the present time, the patient has had no local recurrence, and there is no evidence in any portion of her body of a recurrence.

FOREIGN BODY IN THE INFRATEMPORAL SPACE

J. FRANK FRIESEN, M.D., LOS ANGELES

The illustration gives the exact size of two of several pieces of wood that were removed from the infratemporal space, where they had lodged for four months following an injury. The infratemporal fossae is the open space behind the maxillae, under cover of the tendon of the temporalis, the coronoid process and the ramus of the mandible and the masseter muscle. It contains the pterygoid muscles and the internal maxillary artery among the most important.

REPORT OF CASE

A man, aged 51, admitted to Los Angeles General Hospital, Feb. 7, 1923, was employed as a foreman on a steam pile-driver when a large splinter, several feet long, broke off, striking on the side of the face.

Examination disclosed a deep laceration over the right side of the face. The tissues over the malar eminence were macerated and detached. The lids of the right eye were torn and contused, the lower lid being severed entirely.

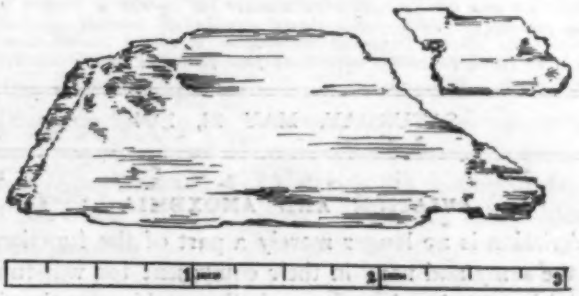
He was taken to the operating room immediately; the wound was cleansed and the torn flaps of tissue were replaced and sutured.

After a month, the wound healed, but there still remained a suppurative discharge from the region below the outer angle of the right eye. There was the possibility of the existence of a foreign body (splinter) in the wounds, or that there was a fracture of the zygomatic bone, with a resultant osteomyelitis.

A roentgen-ray examination revealed a definite clouding of the right maxillary sinus. No fracture was demonstrated. Irrigation of the right antrum resulted in the washing coming through the opening below the eye.

A Caldwell-Luc operation was done. The antrum was found filled with a purulent secretion; the roof of the antrum, which forms the orbital floor, was necrotic and partially absent. In spite of good drainage through a large nasal opening, there was no decrease in the discharge. There was some limitation of the movement of the lower jaw. The patient's temperature remained normal; he did not complain of pain, and was fairly comfortable.

Several roentgenograms of the head were made. Bacteriologic examinations revealed nothing of importance. After the patient had been in the hospital for nearly four months, during which time repeated efforts had been made to find the cause of the continued suppuration, the wound in the side of the face was reopened. The anterolateral wall of the antrum was removed and left open, to allow daily observation and free inspection of the cavity. It was then noted that the secretion that collected below the eye, in the upper part of the wound, came from the region back of the antrum. The nurse made the observation that the flow of the discharge increased during mastication. It became evident that the source of the infection was in the infratemporal fossae (a roomy space behind the maxilla).



Pieces of wood removed from infratemporal spaces.

The infra-orbital margin of the zygomatic bone was removed, and the infratemporal space was exposed. To my surprise, I discovered several pieces of splinter, which had been the cause of the continued suppuration. The long piece of wood lay in a perpendicular position, immediately below the eye, and was wedged so tightly that it was extracted with difficulty. It had evidently gained entrance without injuring the eye, by going through the thin infra-orbital plate. The patient made an uneventful recovery. The absence of the orbital floor has caused the eye to drop; it is hoped to correct this by plastic work.

700 Merritt Building.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

DESICCATED PARATHYROID SUBSTANCE-WILSON.—The exterior parathyroids of the ox freed from fat, cleaned, dried and powdered, without the addition of preservative or diluent.

Actions and Uses.—See parathyroid Gland, New and Nonofficial Remedies, 1924, p. 224.

Dosage.—0.003-0.006 Gm. (1/20-1/10 grain) as often as directed.

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A light yellow powder having a characteristic odor. One part represents approximately 5 parts of the fresh tissue.

Animal Pathology Assists Human Pathology.—Animal pathology, dealing directly with the natural disease and having access to every stage by killing the sick at suitable intervals, will greatly assist human pathology by suggestions springing from an analogy of processes or from a close relationship of pathogenic agents. In a number of instances animal pathology has foreshadowed or anticipated important advance steps in general pathology without arousing any attention.—Theobald Smith: *Edinburgh M. J.* **31**:233 (April) 1924.

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SATURDAY, MAY 24, 1924

AVIATION AND ANOXEMIA

Aviation is no longer merely a part of the functions of the army and navy in their equipment for war-time activities. It has become an indispensable vocation in the routine of peace. The problems that aviation has raised are for the most part so new, particularly with reference to the personnel involved, that they demand special consideration from standpoints heretofore little, if at all, considered. Though the principles of aeronautics were clearly enunciated by Samuel Johnson 165 years ago in his Rasselas, Prince of Abyssinia, it was not until within the twentieth century that air flights began to be practical. Much energy has been spent meanwhile on the details of the machines used for flying; but the importance of the human organism in the outfit is just beginning to be recognized properly. An army officer familiar with the needs of aviation has remarked that a slack control wire is not more dangerous than a weak eye muscle; a poor mixture of gas and air is not more serious than a flier with poor adaptive respiration; and a poor compression in the cylinder is not of such vital consequence as a weak heart muscle.

An ascent of several miles into the upper air, such as has been accomplished in recent times by both American and French aviators, presents some highly unusual conditions that the human body must combat. The most important special feature is the combination of cold and low oxygen tension encountered at high altitudes. The adaptability of a person for the tasks of aviation depends, of course, on numerous qualifications, many of which are psychologic rather than physiologic. In any event, however, he must be able to adjust satisfactorily to some degree of oxygen want if very high altitudes are to be reached.

Professor Schneider[1] of the School of Aviation Medicine at Mitchel Field, to whom we are already indebted for noteworthy contributions to the physiology of altitude, has lately pointed out that the response of man to a deficiency in the oxygen supply depends on modifying circumstances. It varies with the rate at which oxygen is decreased, the degree to which it is decreased, and the length of time it is decreased. A mountaineer may ascend a high peak to an altitude of 15,000 feet without physical effort in a railway car or an automobile. Physiologic adjustments often have time to assert themselves. Respiratory and blood changes slowly come on, and may be permanent during the stay at high altitudes. The alterations in the pulse rate are likely to be slight and gradual. In flights to high altitudes, the anoxemia would be developed far more rapidly; and laboratory tests planned to imitate this condition give rise to symptoms quite different from those experienced by the mountaineer. It is futile to discuss the details here. The point worthy of emphasis is that the respiratory, circulatory and blood changes need not be the same in two types of anoxemia produced under different conditions. In other words, as Schneider has clearly pointed out, because a man reacts in a certain way to a sojourn on a high mountain, it is not safe to predict how he will respond to the lack of oxygen experienced during a flight to high altitudes. Through the advances in laboratory studies, it has become possible to subject persons to conditions comparable with either type of deprivation of oxygen, and particularly those encountered in aeroplane flight. Science thus paves the way to make aviation not only mechanically more efficient but also physiologically more secure.

1. Schneider, E. C.: A Comparison of Three Types of Anoxemia, Mil. Surgeon 54: 328 (March) 1924.

FUNCTION OF THE PERIOSTEUM IN BONE REPAIR

The problems of the growth and repair of the bones inevitably present items of large significance to the clinician. Damage to the skeletal structures brings him face to face with the necessity of facilitating a restoration of the injured part, so that a knowledge of the physiologic processes involved may enable him to promote their function in times of such need. During the period of development and adolescence, it is of great importance to the individual to enjoy a proper transformation of the growing bones into the adult skeletal parts that constitute even more than a veritable framework for our bodily activities. The current interest in the study of rickets is indicative of the importance attached to proper development of the bones. Furthermore, it attests the widespread occurrence of abnormalities that call for corrective procedures. The indifference that was long shown toward the bones, as though they represented merely dead, inert structures, is giving way to a far more intelligent attitude—to a realization that they are, in truth, "living plastic material which is molded by its position, stresses and environment."

In this renewal of studious attention, consideration of late has been fixed primarily on the materials concerned in bone development, and notably on the rôle of calcium, phosphorus and the more vague factors cur-

rently classed as vitamins. It has long been recognized that the process of bone development is a complex one involving, as Mitchell [1] recently summarized it, first, the formation of a comparatively soft cartilaginous structure, resembling the future bone, and, secondly, a process of calcification or hardening, during which inorganic material, chiefly calcium phosphate, is abundantly deposited in the cartilaginous matrix. When requirements for calcification are not fulfilled, soft bones result. There is the added belief that the growth of the bones is in some way influenced by hormones arising from certain endocrine structures. It is defective if the thyroids do not develop properly. The reproductive organs seem to have some relation to the development of the bones; and the apparent connection of the hypophysis is emphasized by the consequences of perverted pituitary functions.

Not long ago, a physiologist remarked somewhat fancifully that the bones "are alive with their own metabolism." Where is the seat of their activities; that is, where are the osteogenic structures located? The cartilage cells that represent the starting point of the development may degenerate or they may become converted into bone-forming osteoblasts. As McCollum [2] has recently pointed out, growth in thickness of the bone shaft is accomplished by cells in a thick layer of connective tissue, which surrounds the shaft and is called the periosteum. These connective tissue cells are transformed directly into osteoblasts, and deposit bone in layers beneath the periosteum. During growth, and to a lesser extent after growth has ceased, the structure of a bone is subject to constant change to meet the requirements of exercise and altering conditions of stress and strain. Old bone is constantly being removed (resorption) and new bone is always being formed. In a normal, healthy bone, McCollum adds, these processes are always in a dynamic equilibrium.

There was a time when osteogenic power was denied to the periosteum. The importance of this structure in the regeneration of bone is, however, coming to be better appreciated. This is a matter of particular importance to the surgeon dealing with reparative processes and bone grafts. Haas [3] has recently directed attention to the comparable influence of the endosteum in bone renewal. His experiments show that the removal of either the periosteum or the endosteum alone is without effect on the healing of fractures in transplanted bones; but the removal of the periosteum and endosteum together causes a complete cessation of proliferation at the fracture surfaces, and consequently a failure of union in every case. According to Haas, the chief source of osteogenic cells, for the repair of a fracture in a transplanted bone, is from the osteoblasts of the periosteum and the endosteum. The presence of either is sufficient for union. The periosteum plays a relatively more active part than the endosteum. Consequently, in order to attain a maximum of reparative power for any bone lesion, it is deemed essential to preserve the integrity of both the periosteum and the endosteum.

1. Mitchell, P. H.: General Physiology, New York, McGraw-Hill Book Company, 1923.
2. McCollum, E. V.: The Newer Knowledge of Nutrition, Ed. 2, New York, the Macmillan Company, 1922.
3. Haas, S. L.: The Importance of the Periosteum and the Endosteum in the Repair of Transplanted Bone, Ann. Surg. 8: 535 (March) 1924.

INSULIN AND KETOSIS

The distribution in nature of substances comparable with pancreatic insulin has been studied by several investigators. The term "glucokinin" has been applied to certain of these, said to be derived from yeast and other vegetable sources. It is worth while, therefore, to call attention to the fact, well known to biochemists, that various chemical compounds have long been observed to be capable of lowering the content of sugar in the blood as insulin does. Macleod [1] has properly given warning that, despite such experimental evidence for the reduction of hyperglycemia, great caution should be exercised in considering these products for clinical use until it is certain that they have no deleterious effects on the liver. It is possible also, he adds, that the substances merely stimulate the secretion of insulin from the pancreas of the animal into which they are injected, or serve as precursors for its production. If this is the case, then they can have little value in diabetes. It must be remembered also that extreme lowering of blood pressure is associated with hypoglycemia. According to Macleod, typical insulin, when given to normal animals, should cause immediate reduction of the blood sugar; and, when hypoglycemic symptoms supervene, these should be immediately and permanently removable by injections of glucose. When insulin extracts are given to diabetic animals, the symptoms, including primarily hyperglycemia, glycosuria and acetonuria, should immediately disappear and the general condition greatly improve; and when carbohydrate also is given, the respiratory quotient should rise decidedly and glycogen be deposited in the liver.

The profound effect of insulin in decreasing ketosis was observed early in the study of the physiology of the newly discovered hormone. This represents a secondary phenomenon dependent on the more normal progress of carbohydrate metabolism. Thus, fat can be burned without leaving the ketone "clinkers," so that the latter disappear from the urine. But ketosis is not confined solely to cases of diabetes. It is an accompaniment of the carbohydrate starvation, however produced. Acidosis is not infrequently found in preoperative or postoperative conditions, owing to enforced deprivation of food for one reason or another. It is found accompanying so-called toxic vomiting, sometimes particularly of the persistent type seen in pregnancy. It is not without considerable interest, therefore, to find attention directed to the possible value of insulin in the treatment of nondiabetic

1. Macleod, J. J. R.: Insulin, Physiol. Rev. 4: 21 (Jan.) 1924.

acidosis. The alleviation of this condition through effective administration of glucose by rectum or parenterally has been demonstrated by various clinicians. The recovery is said to require several days. More prompt success has been reported by Thalhimer [2] and by Fisher and Snell [2] through the combined use of insulin hypodermically and glucose intravenously. It is far too early to generalize broadly from the few successful treatments recorded; but there is sufficient scientific background to the project of testing the curative power of insulin-glucose treatment for pernicious vomiting and other comparable conditions to warrant giving it careful consideration. The procedure is not free from some element of danger that should not be minimized. Insulin therapy demands care in the case of the diabetic patient; doubly great is the need of intelligent precaution with the nondiabetic patient.

BACILLUS ACIDOPHILUS THERAPY

The use of milk soured by the accidental presence of acid-producing bacteria, or by the intentional addition of certain types of micro-organisms for therapeutic purposes, is not new. It has been recommended by physicians and practiced among the laity for a long time. The question as to whether it brings about any specifically useful effect, and, if so, wherein the advantageous potency may reside, has been the subject of prolonged discussion. To many persons the soured milks are particularly palatable, so that they invite the ingestion of the components of milk by those who might otherwise decline the use of this wholesome food. It has been argued that the digestibility of milk is greatly enhanced by the presence of the fermentation acid which decreases the buffer index of the milk. This is in harmony with the recommendations for the addition to cow's milk, in the feeding of infants, of either hydrochloric acid, as proposed by Faber, or lactic acid, as championed by Marriott. Others have pointed to the viable bacteria in soured milks as the agencies to which alleged benefits are attributable; and they stress, in particular, the possible rôle of lactic acid producing micro-organisms in altering the bacterial flora of the intestine through the implantation of the strains found in the soured milks.

There seems to be a preponderance of opinion, if not a consensus, at present that a wide clinical observation justifies the belief that, for certain types of gastric and intestinal disturbances, soured milk accomplishes more than sweet milk with a similar content of proteins, fats and sugar. However, the history of the exploitation of *Bacillus bulgaricus* in this connection has furnished a proper warning against overenthusiasm for any particular hypothesis in relation to soured milk therapy. The pendulum of enthusiasm for Metchnikoff's assertions, and more especially for the special application of the theories that seemed to receive his support, has ceased to swing in one direction; in fact, it has virtually been brought to rest with the discrediting of the unwarranted assumptions and the inadequate observations on which many of them rested.

Meanwhile, a somewhat better plea seems to have been advanced for *Bacillus acidophilus*, which has found its foremost champion in Rettger of Yale University. Through the use of milk cultures of this organism, it seems demonstrated beyond reasonable doubt that, in man, a transformation of the intestinal flora from a proteolytic to an aciduric type can generally be induced. In cases of constipation, beneficial effects in the direction of more ready defecations are said to arise. Bacillus acidophilus milk has at least attained the dignity of tentative recognition by the Council on Pharmacy and Chemistry of the American Medical Association,[1] though this must by no means be interpreted as recommendation. How may *Bacillus acidophilus* be assumed to act beneficially? Kopeloff [2] pointed out not long ago that the action of Bacillus acidophilus milk is neither strictly physical nor chemical; that is, it does not depend on volume or chemical constituents, but appears to be essentially a bacteriologic phenomenon. This conclusion was based on the fact that neither sterile skim milk nor sterilized Bacillus acidophilus milk influenced constipation, as did Bacillus acidophilus milk in which the viable organisms were uninjured. The experiments were open to some criticism on the ground that sterilizing Bacillus acidophilus milk caused a change in chemical composition. Consequently, Kopeloff and Beerman [3] have tested the effects of the acid milk after separation of the micro-organisms by centrifugation and appropriate filtration. The chemical constituents were little altered in the filtrate; yet, when fed to patients suffering from constipation, it was practically without effect. Regular Bacillus acidophilus milk ingested subsequently resulted in an increase in the number of normal defecations. So far as the evidence accumulated warrants generalization, it seems to justify the conclusion that *Bacillus acidophilus* therapy is essentially bacteriologic rather than physical or chemical in nature.

2. Thalhimer, William: Insulin Treatment of Postoperative (Nondiabetic) Acidosis, J. A. M. A. **81**: 383 (Aug. 4) 1923; Insulin Treatment of the Toxemic Vomiting of Pregnancy, ibid. **82**: 696 (March 1) 1924. Fisher, David; and Snell, M. W.: The Insulin Treatment of Preoperative and Postoperative Nondiabetic Acidosis, ibid. **82**: 699 (March 1) 1924.

1. Lactic-Acid Producing Organisms and Preparations, J. A. M. A. **81**: 831 (Sept. 8) 1923.

2. Kopeloff, Nicholas: Is the Action of Bacillus Acidophilus a Strictly Bacteriologic Phenomenon? J. A. M. A. (March 3) 1923; Clinical Results Obtained with B. Acidophilus Milk, Proc. Soc. Exper. Biol. & Med. **20**: 424 (May 16) 1923.

3. Kopeloff, Nicholas, and Beerman, Philip: Studies on the Nature of Bacillus Acidophilus Therapy, Arch. Int. Med. **33**: 55 (Jan.) 1924.

Hilum Node Tuberculosis.—Tuberculosis of the hilum nodes does occur; it occurs more commonly in children; the incidence is anywhere from 40 to 70 per cent.; it has primary manifestations; it is an acute condition and may be of serious importance. Furthermore, hilum node tuberculosis occurs without and with pulmonary disease.—J. A. Honeij: *Am. Rev. Tuberc.* **9**:9 (March) 1924.

Current Comment

THE SIGNIFICANCE OF AMMONIA FORMATION IN THE KIDNEYS

The kidneys are charged with the function, among other renal activities, of regulating not only the osmotic relations within the body, but also the relative quantities of basic and nonvolatile acidic radicals. Since an excess of acid in the body is more likely to occur, the mechanism for eliminating acid and conserving base is of the greatest practical interest. As Wilson[1] has recently pointed out, the limit of reaction of the urine must necessarily limit the efficiency of the kidneys for excreting acids, and might easily lead to an excessive loss of base or a piling up of acid in the organism. However, the substitution of ammonia for some of the fixed base occurs and permits the elimination of acids in the form of neutral salts, and a retention of the fixed base by the body. It is not difficult to conceive of the formation of ammonia in the organism through deamination of amino-acids that are continually liberated and present in the organism. The bulk of the product of such denitrogenation is converted into urea; part of it may serve to unite with any excess of acids awaiting excretion from the body. Where and precisely how this neutralizing effect is produced has not been clearly demonstrated. The actual existence of the neutralization is well attested by the large increment in ammonia output in the urine that attends increased genesis of acids in the organism, as in certain types of diabetes. However, the ammonium ions are decidedly toxic, so that the concentration in the blood must necessarily be very small if untoward consequences are to be averted. It was highly significant, therefore, when Nash and Benedict,[2] in 1921, propounded an explanation of the origin of the urinary ammonia that would account satisfactorily for all the observed facts. According to these authors, the ammonia that finds its way into the urine is produced by the kidneys. The ammonia production might thus be pictured as another phase of the regulatory mechanism in that organ whereby the needed basic materials are reserved, partly by secretion of an acid urine and partly by this localized production of ammonia. Under these conditions the amounts of ammonia in the blood have, of course, virtually nothing to do with the quantities excreted. The Nash-Benedict hypothesis has received an emphatic substantiation from the clinical data reported by Rabinowitch[3] of the Montreal General Hospital. They show that the production of ammonia per liter of acid excreted is greater in normal than in nephritic persons. In normal persons, the formation of ammonia is approximately 1 gm. per liter of total acid, whereas in nephritic persons it may be much less. The average values are lower also for diabetic patients with renal lesions than for those without evident kidney involvement. Rabinowitch points to the general clinical experience that diabetic persons with nephritis are more susceptible to an acidosis than those with no nephritis, assuming other conditions as being constant. This, in great part, is attributed to the vulnerability of the kidneys. The small ammonia content of the blood no longer has the significance that was once attached to it.

1. Wilson, D. W.: Neutrality Regulations in the Body, Physiol. Rev. 3: 295 (July) 1923.
2. Nash, T. P., Jr., and Benedict, S. R.: The Ammonia Content of the Blood, and Its Bearing on the Mechanism of Acid Neutralization in the Animal Organism, J. Biol. Chem. 48: 463 (Oct.) 1921.
3. Rabinowitch, I. M.: The Origin of Urinary Ammonia, Arch. Int. Med. 33: 394 (March) 1924.

Association News

THE CHICAGO SESSION

Handbook of the House of Delegates

May 17, the Handbook of the House of Delegates was mailed to all delegates whose names and addresses had been reported to the Secretary of the American Medical Association. Delegates who fail to receive the Handbook should immediately notify the Secretary of the Association.

Bring 1924 Pocket Cards

Prompt registration will be greatly facilitated if all Fellows will bring 1924 pocket cards and present them, together with their filled in registration cards, at the windows of the Registration Bureau. This bureau will be ready for business at 8:30 a. m., Monday, June 9.

Return Certificates to Be Secured from Ticket Agents

Many Fellows, expecting to attend the Seventy-Fifth Annual Session of the American Medical Association, June 9-13, have written the Secretary requesting that certificates be sent them to be used in securing reduced railroad fare. As has been repeatedly stated in THE JOURNAL and in the *American Medical Association Bulletin*, return certificates must be secured from ticket agents at the time tickets to Chicago are purchased. Full fare must be paid for tickets to Chicago. The return certificates, secured from agents at the time tickets to Chicago are bought, will, when properly signed by the Secretary and validated by a special agent of the railroads, entitle holders to one-half fare for the return trip to their homes. No reduction in fare can be obtained unless these certificates are secured when tickets to Chicago are bought, nor unless they are properly signed and validated at the Registration Bureau on the Municipal Pier in Chicago.

Alpha Mu Pi Omega Medical Fraternity

The Alpha Mu Pi Omega Medical Fraternity will have a buffet luncheon for all chapter members at the University Club, corner of Michigan Avenue and Monroe Street, Chicago, Thursday, June 12, during the regular luncheon hour. Those who expect to attend are requested to notify Dr. William Thorndike, 210 Wisconsin Street, Milwaukee, before June 10.

Association of American Teachers of the Diseases of Children

The Association of American Teachers of the Diseases of Children will hold a meeting at the Drake Hotel, Chicago, Tuesday, June 10, at 2 p. m. Dr. Julius H. Hess, 104 South Michigan Avenue, Chicago, is in charge of arrangements for this meeting.

Interns of Chicago Hospitals

The Committee on Fifth Year Instruction and Organization of the Chicago Medical Society, appointed to interest interns of Chicago hospitals in medical organization and otherwise to be helpful to these young men, has requested that such interns be permitted to attend the meetings of the sections of the Scientific Assembly at the coming annual session. All interns of Chicago hospitals will be given guest badges on presentation of proper credentials at the Registration Bureau on the Municipal Pier.

Free Parking Space

There will be abundant space for parking automobiles within a block of the entrance to the Municipal Pier. All those who expect to come to Chicago in motor cars may feel assured that they can find room for their cars within a convenient distance of the Pier.

Local Attendance Committee

The Local Attendance Committee, a subcommittee of the Committee on Registration, is making an earnest effort to effect a 100 per cent. registration among the members of the Chicago Medical Society. Dr. Emmett Keating, Room 1522, 25 East Washington Street, Chicago, is the chairman of this committee. Only Fellows of the Association can register and participate in the work of the Scientific Sections.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CONNECTICUT

Parents Sentenced for Refusing Vaccination.—Charged with refusal to permit their three children to be vaccinated in order to attend public school, James G. Brown and his wife, of Hartford, were sentenced to five days in jail by Judge Creedon, May 12, in lieu of paying the $10 fine imposed on them. The antivaccinationists, who lost their fight against compulsory vaccination in the last legislature, are being aided by the Connecticut Medical Liberty League, it is reported.

Diploma Inquiry Continued. — The grand jury which recessed, April 30, resumed sessions, May 13. Seventy-six appeals have been filed in the court, together with injunctions restraining the state council of health from revoking the licenses to practice medicine issued by the state eclectic examining board, all of which are to be determined by the state referee. There were 175 names referred to the eclectic examining board, through the medium of the grand jury, for revocation of licenses (THE JOURNAL, February 16, p. 535). Among the witnesses were Dr. Joseph R. Sintzel, secretary of the St. Louis College of Physicians and Surgeons, St. Louis (the state's "surprise witness"); Dr. Frederick C. Waite of Western Reserve University School of Medicine, Cleveland; Dr. Nathan P. Colwell, Chicago, secretary of the Council on Medical Education and Hospitals of the American Medical Association; Dr. William P. Sachs, formerly state examiner of public schools in Missouri, and Harry Brundidge, reporter of the St. Louis *Star*.

"Dr." George M. Sutcliffe, now serving time in prison, was brought from jail, May 14, to testify against some of his former classmates, but he "failed to recognize" many of them. Sutcliffe was formerly registrar to Dean Waldo Briggs at the St. Louis College of Physicians and Surgeons, St. Louis. Seven cases were brought into the hearing at the outset, these being the cases of Maurice Burstan, Lillian Burstan, Gerald Richardson, Bernard Kafka, Harry Chaimson, Isidor Yockelman and Arnold Brien. A fight is reported to have taken place in the morning of May 13, when Yockelman and Maurice Burstan attempted to strike the witness Brundidge. Brundidge knocked them both down, and Detective Hickey ejected both the "physicians" from the building, according to reports. It was learned that the registry and the ledger of the St. Louis College of Physicians and Surgeons, that Dr. Sintzel reported stolen, were taken from the safe of the college, May 4.

Dr. Frederick Waite told of his visit to Boston as representative of the American Medical Association to determine the standing of the Boston College of Physicians and Surgeons and the Middlesex College of Medicine and Surgery. He stated that they were found to be of such low grade that the students could not be exempted from military service to be trained in medical work (THE JOURNAL, March 22, p. 978). Dr. Sintzel testified that he knew of one freshman, Val Rapp (Green Bay, Wis.), who in 1920 was advanced from the freshman to the senior class that year, and that, in 1920, Gerald Joseph McGladigan, a junior, was granted a fraudulent diploma, the name which had originally been inscribed having been erased and that of McGladigan substituted. McGladigan confessed that "Dr." George Sutcliffe had made the erasure and the substitution. Dr. Nathan P. Colwell, Chicago, testified that the medical schools and colleges involved in the Missouri diploma mill scandal were all Class "C" (a rating of less than 50 per cent. on inspection and examination).

The annual meeting of the Connecticut Eclectic Medical Association which was to have been held at the Hotel Garde, Hartford, May 13, was postponed indefinitely, as only about four members, including the president and secretary, appeared. The interest of all the eclectics was centered on the courthouse where the appeals of the eclectics whose licenses were revoked were being heard.

DISTRICT OF COLUMBIA

District Society News.—A committee consisting of Drs. Edgar P. Copeland, Frank Leech, Henry C. Macatee, Luther H. Reichelderfer and John D. Thomas has been appointed to prepare a new medical practice act for presentation to Congress in the fall.——During Cancer Week, April 7-12, a diagnostic cancer clinic was held in the Medical Building. More than 300 consultations were given during the week.——Major Edmund B. Spaeth, M. C., U. S. Army, addressed the section on ophthalmology and otology in Washington, May 16.

Philadelphia Medical Club Visits Washington.—To celebrate the thirty-third anniversary of the Philadelphia Medical Club approximately 600 physicians of Philadelphia made a pilgrimage to Washington, May 15. There are 1,250 members in the club of which Dr. William Duffield Robinson is president. President Coolidge received the members on the White House lawn, following which they visited the Smithsonian Institute, the Walter Reed Hospital, the Army Medical Museum and Arlington Cemetery. Wreaths were also placed on the graves of Dr. Benjamin Rush and of Dr. Samuel D. Gross.

GEORGIA

Personal.—Dr. Samuel A. Anderson, Macon, has been appointed health commissioner of Baldwin County to succeed the late Dr. George L. Chapman.

County Meetings.—Brooks County Medical Society has elected Dr. Jack R. McMichael, Quitman, president for the coming year.——Drs. Mark E. Perkins and Cleveland Thompson, both of Millen, were elected president and secretary, respectively, of the Jenkins County Society.——At the annual meeting of the Franklin County Medical Society, Dr. Stewart D. Brown, Royston, was elected president, and Dr. B. T. Smith, Carnesville, secretary.

ILLINOIS

Society News.—At the annual meeting of the Jersey County Medical Society in Jerseyville, April 23, Dr. Hugh R. Bohannan, Jerseyville, was elected president; Dr. Henry R. Gledhill, Jerseyville, vice president, and Dr. Bert M. Brewster, Fieldon, secretary-treasurer.——At the forty-seventh annual meeting of the Central Illinois Medical Society at Pana, April 29, Dr. Robert L. Morris, Decatur, was elected president to succeed Dr. Dorwin D. Barr. Dr. Samuel B. Herdman, Taylorville, was elected vice president, and Dr. Franklin A. Martin, Pana, secretary-treasurer.

Incidence of Goiter in Students.—According to the annual report of the health officer of the University of Illinois, among 1,335 women in the three upper classes, 445, or 33 per cent., have an enlargement of the thyroid gland. Only 234, or 6 per cent., among 3,709 men students in the same classes are thus affected. From the zone including Chicago and territory in Illinois within fifty miles of that city (including Cook, Lake, Kane, DuPage, Kendall, Will, Grundy, Kankakee and McHenry counties), 45 per cent. of the women students were goitrous.

Infant Mortality Rate.—Recently compiled statistics show that the 1923 infant mortality rate for the state was 81.9 per thousand live births reported, against 77.6 for 1922. The increase in rate accounted for a total rise of 623 in the number of deaths among infants less than a year of age. The total number of such fatalities in the state during 1923 was 10,810, against 10,187 during the year before. The highest county rate in 1923 was 168.4 for Alexander, and the lowest was 42.2 for Hancock. Cairo, with 155.3, had the highest city rate, while Oak Park, with 37.2, had the lowest. The rate for Chicago was 87.3, while that for downstate was 76.

Campaign to Establish County Health Departments.—The establishment of full time, efficient county health departments is the chief object of a campaign recently opened by the state department of public health. In this movement, the state will have active support from the federal government. Dr. Thomas Parran of the U. S. Public Health Service is already in Illinois, assigned for duty under the direction of the state department of public health. He will spend his

entire time, during the immediate future, in promoting and organizing county health units. Staff members of the state department will be available for the same purpose. Federal funds from the U. S. Public Health Service for subsidizing a limited number of county health units that may be organized under Dr. Parran's direction are available for immediate utilization. Communications from local sources relative to the whole proposition are encouraged.

Chicago

Personal.—Prof. Roswell P. Angier, Ph.D., director of the Psychologic Laboratory of Yale University, New Haven, Conn., has been appointed professorial lecturer in psychology at the University of Chicago, and William Taliaferro, of Johns Hopkins University, Baltimore, associate professor of hygiene and bacteriology.——Dr. Frank Smithies, professor of medicine, University of Illinois College of Medicine, addressed the combined medical and surgical sections of the Ohio State Medical Association at its annual meeting in Cleveland, May 15, on "The Results of Eight Years' Treatment of Peptic Ulcer by the Physiologic Rest Method, and Without the Use of Alkalies or Lavage."

Chicago Meetings.—The second annual meeting of the American Association for the Study of Allergy will be held in Chicago, June 10, under the presidency of Dr. Grant L. Selfridge, San Francisco. Among the speakers will be: Drs. William Ray Shannon, St. Paul; George N. Jack, Buffalo; George Piness, Los Angeles, and Karl K. Koessler and Harry L. Huber of Chicago.——The American Association of Industrial Physicians and Surgeons will meet at the Auditorium Hotel, Chicago, June 9-10. Dr. Loyal A. Shoudy will preside.——The American Radium Society will hold its annual banquet at the Drake Hotel, June 9. Professor Regaud of the Radium Institute of the University of Paris and of the Curie Foundation, will be a guest of honor with Drs. Howard A. Kelly, Baltimore, and James Ewing, New York. Reservations for the dinner can be obtained from Dr. Henry Schmitz, Chicago, up to the morning of June 9.——A meeting of the American Association for Study of Goiter will be held in the Hotel Sherman, Chicago, Tuesday, June 10, preliminary to the meeting of the scientific sections of the American Medical Association.

INDIANA

Dr. Wishard Honored.—Dr. William N. Wishard, Indianapolis, has had the degree of doctor of laws conferred on him by Indiana University, Bloomington, in connection with the celebration of the hundredth anniversary of the institution. Dr. Wishard is professor of genito-urinary surgery at the Indiana University School of Medicine, Indianapolis.

IOWA

Iowa Wins in Health Educational Work.—For the fifth time in as many years Iowa schools are leaders in health educational work, according to an announcement from the National Tuberculosis Association of New York. In the national interschool contest in the modern health crusade work for the first half of the present school year, Iowa won four out of the eleven first prize banners. Two hundred and sixty-eight prize pennants have been awarded to Iowa schools for excellence in practical health work. This is nearly half the total number awarded throughout the country.

State Medical Meeting.—At the seventy-third annual meeting of the Iowa State Medical Society in Des Moines, May 7-9, the following officers were elected for the ensuing year: president, Dr. Frank M. Fuller, Keokuk; president-elect, Dr. S. A. Spilman, Ottumwa; vice presidents, Dr. William H. Rendleman, Davenport, and Dr. Thomas U. McManus, Waterloo; secretary, Dr. Tom B. Throckmorton, Des Moines, and treasurer, Dr. Addison C. Page, Des Moines, both reelected. The next annual meeting will be held in Des Moines, May 13-15, 1925. An amendment was made to the by-laws as follows: "Any person practicing the methods of any cult or who counsels with or who is professionally associated with any person practicing the methods of any cult not recognized by, or taught in standardized medical colleges, who refuses to discard such methods of practice, or such association, shall be expelled from the membership of the society."

KANSAS

State Medical Meeting.—Officers elected at the meeting of the Kansas Medical Society in Wichita, May 7-8, for the ensuing year are as follows: president, Dr. Alfred O'Donnell, Ellsworth; vice presidents, Drs. Francis A. Carmichael, Osawatomie, Orlan D. Sharpe, Neodesha, and Frank C. Boggs, Topeka; treasurer, Dr. George M. Gray, Kansas City, and secretary, Dr. John F. Hassig, Kansas City, reelected. The 1925 meeting will be held in Topeka, May 5-7.

KENTUCKY

Chiropractors Fined.—According to reports, S. D. Porter, Central City, and Dr. N. T. Risner, Greenville, chiropractors, were found guilty of practicing medicine without a license, April 26, and fined $50 each.

Personal.—Dr. Raymond E. Finnie, Paducah, has been appointed prison physician for the Frankfort Reformatory to succeed Dr. William H. Evans.——Dr. Irvin Abell, Louisville, has been appointed a member of the Jefferson County Board of Health.

McMurtry Library Donated to University.—The University of Louisville medical department has received a collection of McMurtry memorabilia about which it hopes to develop a historical museum. A portrait of Dr. Lewis S. McMurtry, painted by Ferdinand G. Walker, will be hung in the school library. Miss Mary L. McMurtry, daughter of the deceased physician, has presented his entire library, which includes the transactions of the American Gynecological Association and the American Surgical Association for many years and copies of editions of rare publications. Letters from Oliver Wendell Holmes, Ephraim McDowell and Samuel D. Gross are included, and a scrap book kept at the time Dr. McMurtry was president of the American Medical Association.

LOUISIANA

Tuberculosis Conference.—In response to invitations from the president of the state medical society, Dr. C. V. Unsworth, more than a hundred persons attended a luncheon, May 12, to discuss the extension of tuberculosis control in Louisiana. Dr. Linsly R. Williams, managing director of the National Tuberculosis Association, and Dr. William Paterson, Cleveland, who spoke, emphasized the need of a state institution.

MARYLAND

American Orthopedic Association.—The thirty-eighth annual meeting of the American Orthopedic Association was held, May 15-18, in Baltimore and on the Chesapeake Bay. The convention opened with an operative clinic at the Johns Hopkins Hospital in which Dr. John M. T. Finney, Dr. William S. Baer (president) and Dr. George E. Bennett took part, followed by a scientific session at the University of Maryland Hospital. On the evening of the 15th, the members and their wives embarked on the steamship *City of Norfolk*, which had been chartered for a four-day cruise. Scientific sessions were held each morning and the afternoons were spent on land, while the evenings were devoted to entertainment on board ship. The party visited Yorktown, Annapolis, Norfolk and other points of interest.

Board to Plan Needs of Johns Hopkins University.—A single committee of ten members charged with planning all present and future needs of the Johns Hopkins University and Hospital was recently created, with final ratification of the personnel by the board of trustees of the hospital. Similar action was taken by the university some time ago. Headed by Frank J. Goodnow, LL.D., president of the university, the committee has been empowered to outline a program of university and hospital advancement commensurate with the rôle of leadership in education and science held by the institution over a long period of years. Three members each from the university and the hospital boards and four ex-officio members constitute the new committee. The university representatives are Benjamin Howell Griswold, Jr., LL.B., Dr. Jacob Hall Pleasants, Jr., and Blanchard Randall George Cator, Ph.D. Dr. Henry Barton Jacobs and Dr. Richard J. White were named from the hospital board. The other members, besides Dr. Goodnow, are Dr. Winford H. Smith, director of the hospital; R. Brent Keyser, president of the university board, and Henry D. Harlan, president of the hospital board. As separate corporations, the university and the hospital have individual boards of trustees. However, the activities of the two institutions are so interlocked it is imperative for them to function jointly in a plan for future developments.

Personal.—Dr. Mary Sherwood, director of the municipal bureau of child welfare, Baltimore, has tendered her resignation to Dr. C. Hampson Jones, commissioner of health, to take effect July 1. Dr. Sherwood will go to Christiania, Norway, as a delegate to the convention of the International

Federation of University Women, to be held the latter part of July, and will remain abroad after the convention indefinitely. Dr. Sherwood organized the bureau of child welfare in February, 1919.——Dr. C. U. Ariens Kappers, director of the Central Institute for Brain Research, Amsterdam, gave a lecture on "The Structural Laws of the Central Nervous System," May 16, in the medical amphitheater of the Johns Hopkins Hospital. The lecture was one given under the auspices of the Herter Lecture Fund.——Dr. Haven Emerson, public health administrator, Columbia University, will be one of the speakers at the Southern Hotel, Baltimore, May 27, under the auspices of the American Committee for the Relief of German Children. Dr. Emerson recently returned from a health survey of German cities.——Prof. Reynold A. Spaeth, Ph.D., associate professor of physiology at the School of Hygiene and Public Health, Johns Hopkins University, Baltimore, has accepted a three-year appointment as visiting professor of physiology at the Medical School of Chulalongkorana, Bangkok, Siam. The appointment was made by the Rockefeller Foundation, and Dr. Spaeth will sail in October for Bangkok.

MASSACHUSETTS

Chiropractor Convicted.—E. J. DeLorme, Spencer, was found guilty of practicing medicine without a license in the East Brookfield District Court, April 22, and fined $100, it is reported.

Pediatricians Meet.—A meeting was held at the Boston Medical Library, May 9, under the auspices of the New England Pediatric Society, at which Dr. Alphonse R. Dochez, New York, and Dr. Francis G. Blake, New Haven, Conn., spoke on the etiology of scarlet fever and the elaboration of a specific therapeutic serum.

Health in Rural Communities.—The committee of ways and means of the House of Representatives recently recommended that the department of public health should investigate the conditions existing throughout the commonwealth with respect to the maintenance of adequate and competent health and medical service in the sparsely settled districts.

Bill for Hospital Maintenance.—A bill has been introduced for the purpose of erecting additional buildings for the Boston City Hospital, for remodeling existing buildings, and for the purchase of additional property for hospital purposes. It also provides that the city may borrow, outside the limit of indebtedness, within five years from the passage of this act, such sums as may be necessary, not exceeding $2,000,000, and may issue bonds or notes therefor. This act shall take effect on its acceptance by vote of the city council and subject to the provisions of the city charter, provided that such acceptance occurs prior to December 31.

MINNESOTA

University Appointments.—At the meeting of the administrative board of the University of Minnesota in Minneapolis, April 10, the following nominations for medical school appointments were made: Dr. Myer N. Moss, assistant in obstetrics and gynecology; Dr. Hewitt B. Hannah, assistant in nervous and mental diseases; Dr. Hymen S. Lippman, instructor in pediatrics; Drs. David M. Siperstein and Aaron Friedell, assistants in pediatrics; Dr. George N. Ruhberg, instructor in neurology; Dr. Reuben A. Johnson, instructor in medicine, and Drs. Kenneth H. Sutherland, Laurence H. Cady and Harry DeWitt Lees, instructors in preventive medicine and public health.

MISSOURI

Save Your Sight Day.—The first annual "Save Your Sight Day" was held in St. Louis, May 14, under the auspices of the Missouri Association for the Blind. Seven free clinics were given by members of the ophthalmic section of the St. Louis Medical Society.

Health Board Sued.—According to reports, the Kansas City University of Physicians and Surgeons, May 1, filed proceedings against the state board of health alleging that the school had been damaged by a statement of the board that the institution was not a reputable school of medicine. Judge Hall of the circuit court issued a writ requiring the defendants to appear before him, May 10, with full records of the proceedings that resulted in the board's statement.

Personal.—Dr. James F. Owens, St. Joseph, was elected president of the board of health, May 5, succeeding Dr. Horace W. Carle, resigned.——Dr. Eugene H. Bullock has resigned as health director of Kansas City.——Dr. Russell L. Haden, professor of experimental medicine, University of Kansas School of Medicine, was awarded the J. D. Griffith prize of $100 at the annual smoker of the Kansas City Academy of Medicine, May 16, for his paper on "Ocular Pathology Associated with Dental Infection." Dr. Griffith offers this prize for the best scientific paper read before the academy each year.

NEW JERSEY

National Board of Examiners Meets.—The National Board of Medical Examiners, with Dr. J. Stewart Rodman presiding, opened its annual conference at the Hotel Marlborough-Blenheim, Atlantic City, May 5.

Joint Committees to Consider Expert Testimony.—At a recent meeting of the New Jersey Bar Association, the unreliability of expert testimony was the subject of discussion. A committee was appointed to confer with a similar committee representing the Medical Society of New Jersey on measures calculated to eliminate unreliable expert testimony, especially in regard to mental conditions.

NEW MEXICO

Sanatorium Closed.—St. John's Sanatorium, Albuquerque, under the administration of the Episcopal Church, closed its doors, May 1. It was established in 1912 and had accommodation for 100 tuberculous patients.

Health Officers Meet.—The annual meeting of the New Mexico Health Officers' Association was held, May 26, at Albuquerque. Dr. Leslie L. Lumsden, surgeon, U. S. Public Health Service, and Dr. Platt W. Covington, field director of the Rockefeller Foundation, gave addresses on "Rural Sanitation" and "Organization of County Health Work," respectively.

NEW YORK

Committee on Illegal Practice.—In the campaign being made against illegal practitioners by the Kings County Medical Society, a center for medical information has been established in its library building. Here the press will be advised as to the scientific basis for "cures." A questionnaire broadcast to assist in locating illegal practitioners resulted in the receipt of 133 definite complaints against cultists and organizations. Of these, 124 were located in Brooklyn; eighty-two men and women were alleged to be practicing medicine without a license; seven were accused of being abortionists, and two of practicing with the licenses of others. There were twenty-six general complaints against chiropractors, naprapaths, opticians, optometrists and others using the title of "doctor." The constitution of the society has been so amended as to provide for the organization of a standing committee to be known as "The Committee on Illegal Practice."

New York City

Scholarships Available for Postgraduate Study.—Scholarships on the Oliver-Rea Foundation for graduate study in medicine are available at the New York Post-Graduate Medical School and Hospital. Inquiries should be addressed to the Dean, 301 East Twentieth Street, New York City.

Benefit Performance for German Physicians.—May 12, the Shuberts gave a benefit performance of *Vogues* for needy physicians in Germany. The benefit was held under the auspices of the Association for the Relief of Needy Physicians of Central and Eastern Europe and of the Ladies' Aid Society of the Lenox Hill Hospital.

Charities Merge.—The New York Association for Improving the Condition of the Poor has taken over the Society for the Prevention and Relief of Tuberculosis. A new standing committee of the board of managers of the former association, known as the Committee for the Prevention and Relief of Tuberculosis, has been organized and has held its first meeting. It is believed that the consolidation of these two societies will facilitate the work of caring for the tuberculous poor.

Jury Verdicts of Insanity Opposed.—At the meeting of the New York Society of Medical Jurisprudence, May 12, Dr. Carlos F. McDonald made the address of the evening. He urged that jury verdicts as to a man's sanity in criminal cases be eliminated and that the question of insanity be determined after the conviction of a defendant by a commission appointed by the court. He upheld the integrity of the vast majority of alienists and urged the profession to establish the standards of qualification for experts appearing in court.

Child Health Campaign.—Several weeks ago Health Commissioner Monaghan issued an appeal to the parents of all preschool age children, asking that during May every child be given a physical examination. Baby health stations and health centers throughout the city conducted by the department of health are at the disposal of the public for the examination of children. The examinations are being made by the health department physicians and nurses. Dr. Monaghan has called on all other organizations conducting children's clinics to give special attention to the younger element among the children during this month. Mayor Hylan has also issued a proclamation urging the public to cooperate.

Academy of Medicine Accepts Bust of Pasteur.—At the meeting of the New York Academy of Medicine, May 15, Dr. William H. Welch of Johns Hopkins University presented the first Arinson bust of Louis Pasteur in behalf of the donor, Mr. A. Nelson Lewis. It was the wish of the late Mrs. A. Nelson Lewis that the academy should receive this bust as a memorial to her father, Ward McAllister. Dr. Welch explained that there are three busts of Pasteur by Arinson, of which this is the first; another was presented to the Pasteur Institute by the French government, while the third is in the possession of the Pasteur family. The gift was accepted by Dr. Linsly R. Williams, director of the academy. M. Brouzet, acting consul-general of France, made a brief address.

Academy of Medicine.—The New York Academy of Medicine recently issued its annual report. Among the recommendations are the following:

A Wassermann test should be made in every obstetrical case in all hospitals.

Institutions for convalescents need a coordinating body to formulate medical and administrative standards, and to adjust supply and demand of facilities.

Devices must be installed to eliminate dangerous concentration of carbon monoxid from automobile exhaust gas.

Rural health centers should be supported locally; drug addiction should be made a police problem, but needless restrictions should not be put on physicians prescribing for addicts.

The medical practice act should be so amended that all who treat disease and injury should be required to meet the same educational requirements.

Religious healing should be inteiligently guided, and in clinics and preventoriums for nervous, mental and personality disorders a clergyman may assist the physician under the latter's supervision.

Scarcity of necropsy material for teaching pathology calls for change of archaic laws so that, if no objection is made by the next of kin, a necropsy can be done in every case within forty-eight hours after notification of death. A proposed new act, to be approved by medical schools, is to be submitted for legislative passage.

Training of nurses should not exceed two years.

Personals.—Dr. Harry M. Archer, honorary deputy chief and medical officer of the New York Fire Department, has had conferred on him the highest honor for heroism that the fire department can bestow. Dr. Archer has been awarded the James Gordon Bennet Medal for a feat performed, March 30, 1923, when he rescued two workmen from the wreckage of two old houses that collapsed while they were being razed.——Dr. Otto Rank of Vienna spoke on "The Essence of Psycho-Analytic Therapy" before the New York Academy of Medicine, May 13.——Dr. Henry O. Reik has resigned the editorship of the *International Medical and Surgical Surveys* and all other publications of the American Institute of Medicine.——Dr. Frank Overton, state sanitary supervisor since 1914 in charge of the Long Island district, has resigned in order to accept appointment as executive editor of the *New York State Medical Journal*. Dr. Richard Slee succeeds Dr. Overton as district state health officer.——Dr. Isaac Glassman was recently elected president of St. Mark's Hospital Alumni Association.——E. V. Cowdry, veterinarian of the Rockefeller Institute for Medical Research, sailed recently for South Africa via England to spend a year at the Transvaal University College in Pretoria at the invitation of the dean of the veterinary division, Sir Arnold Theiler, where he plans to study the life cycle of protozoa causing diseases of domestic animals.——The board of trustees of the Rockefeller Institute for Medical Research announces the election of Dr. Francis Gilman Blake of Yale University School of Medicine, New Haven, Conn., to the board of scientific directors of the institute to fill the vacancy created by the death of Dr. Hermann M. Biggs.

OHIO

Hospital News.—Dedication exercises for the new Riverside Hospital, Warren, were held, April 12, followed by a banquet at the Warner Hotel.——The contract has been let for the erection of the new Mahoning County Tuberculosis Hospital, at Canfield, at a cost of $167,095.——The Citizens' Hospital, Barberton, was badly damaged by fire recently. No casualties resulted.——The contract has been awarded for the construction of the new Starling-Loving Hospital at Ohio State University College of Medicine, Columbus, at a cost of $455,178.——It has been announced by nine Cleveland hospitals that they will give medical aid to school children in case of injury. When there is neither physician nor nurse at the school, an outside physician cannot be called because the school board cannot legally pay for his services if the child's parents are unable to pay. The new plan arranges that after treatment at the hospital the injured child will be turned over to his family physician.——The tenth annual convention of the Ohio Hospital Association will be held at Cedar Point, June 10-12. The Ohio Dietetic Association and the Association of Assistant Physicians in State Hospitals will hold their meetings at the same time.——A new building exclusively for crippled children will be erected at the Miami Valley Hospital, Dayton, to be known as the Whitmore Memorial Building, it is announced by the superintendent, Dr. Eli R. Crew. The cost of erection will be approximately $50,000.——The Hempstead Hospital, Portsmouth, is having plans drawn for a $20,000 nurses' home.——An addition, including a new service building, will be erected at the Maternity and Children's Hospital, Toledo.——The Brotherhood of Railroad Trainmen, Lodge No. 425, proposes to erect a $50,000 hospital at Willard. The site has not yet been selected.

PENNSYLVANIA

Veterans' Hospital for Sick Children.—May 15, the state health department announced that the former veterans' tuberculosis hospital at Mont Alto will be turned into a health camp for undernourished children and children whose parents are tuberculous. Arrangements are being made to accommodate 200 children from the section of the state east of Harrisburg. Playrooms, classrooms, restrooms, playground facilities and a modern diet kitchen have been provided. Physicians, welfare agencies, civic organizations and dispensaries are aiding in the selection of the children who will be taken to Mont Alto, June 1.

Society News.—The seventy-fifth anniversary of the founding of the Philadelphia County Medical Society was celebrated, May 7, by a banquet at the Bellevue-Stratford Hotel. Dr. Frederick Hurst Maier presided. Dr. Jacob Solis-Cohen was introduced as the "oldest in membership of the society," and Dr. James M. Anders gave the historical address. Dr. Wilmer Krusen, director of health of Philadelphia, and Dr. Jacob Parsons Schaeffer, Jefferson Medical College, spoke on "The Society" and "Our Opportunities and Responsibilities," respectively.——At the meeting of the Allegheny County Medical Society in Pittsburgh, May 20, Prof. Harold D. Fish, head of the department of zoology, University of Pittsburgh, spoke on "Evolution and Experiments in Heredity."——The seventy-eighth annual banquet and reception of the Northern Medical Association of Philadelphia was held at the Hotel Adelphia, May 23. Dr. Jacob Solis-Cohen was the guest of honor.

Philadelphia

Damage Suit for Antenatal Injury.—A decision was recently handed down by Judge Gordon in Philadelphia holding that a person may sue and recover for damages received previous to birth. A suit was brought by Israel Kein in the name of his daughter against William Zuckerman, whose automobile a month before the birth of the child seriously injured the mother. The child was born with a deformity supposedly the result of the accident.

Personal.—Dr. C. U. Ariens Kappers, director of the Central Brain Institute, Amsterdam, Holland, was the guest speaker at the special meeting of the Physiological Society in the medical laboratories of the University of Pennsylvania, May 15. His subject was "The Structural Laws of the Central Nervous System."——Dr. Malcolm T. MacEachern, president of the American Hospital Association and associate director of the American College of Surgeons, was the guest speaker at the meeting of the Philadelphia Hospital Association at the College of Physicians, May 14.——Prof. A. Jacob of University of Hamburg, Germany, addressed the section on general medicine of the College of Physicians, May 19, on "The Anatomic Relations: the Clinical Syndromes and the Physiology of the Extrapyramidal System."——Dr. George E. de Schweinitz, President of the American Medical Association in 1922-1923 and until recently professor of ophthalmology in the University of Pennsylvania School of Medicine, who was presented with a plaque in recognition of his services to

science, at the congress of the French Ophthalmological Society in Paris, May 14, was given an ovation. He was received by Dr. Henri Roger, dean of the faculty of medicine of the University of Paris, and introduced by Dr. Dors of Lyons, president of the congress.

TENNESSEE

Vanderbilt University Appointments.—Dr. Walter S. Leathers, executive officer of the Mississippi State Board of Health, who resigned recently, has accepted the appointment of professor of preventive medicine at Vanderbilt University Medical Department, Nashville, and will take up his work in Nashville following a year in Europe.——Dr. Hugh J. Morgan, resident physician at the Hospital of the Rockefeller Institute, New York, and Dr. Charles Sidney Burwell, instructor in medicine, Johns Hopkins University Medical Department, Baltimore, have been appointed associate professors of medicine at the university.

TEXAS

Personal.—Dr. William E. Lucey has resigned as city health officer of Cleburne.——Dr. David L. Bettison, Dallas, was unanimously elected president of the Baylor Medical Alumni Association at a meeting held, April 29, at San Antonio.

VIRGINIA

Public Health Officers Elect.—At the annual meeting of the Virginia Public Health Association in Richmond recently the following officers were elected for the ensuing year: president, Dr. William S. Keister, Charlottesville; vice presidents, Aubrey Straus, state bacteriologist, and Dr. William R. Culbertson, Norton, health officer of Wise County, and secretary-treasurer, Dr. Lonsdal J. Roper, director of public welfare, Portsmouth, reelected. Dr. Powhatan S. Schenck, Norfolk, retiring president of the association, was elected to represent the state body on the council of the American Public Health Association.

WEST VIRGINIA

Hospital News.—A new three-story building will be erected at the Oak Hill Hospital, Oak Hill, in the near future, according to announcements.——Dr. F. G. Pettit has been appointed superintendent of Hopemont State Tuberculosis Sanatorium, Hopemont, to succeed Dr. Elijah E. Clovis, resigned.

CANADA

News of Societies.—At the annual meeting of the Ontario County Medical Society, held at the Ontario Hospital Infirmary, Whitby, Ont., recently, the following officers were elected: president, Dr. James Moore, Brooklin; vice president, Dr. John M. Smith, Beaverton, and secretary, Dr. Clarence M. Crawford, Whitby.

Public Health News.—The third death from smallpox has been reported from Aylmer, Que. The disease has been confined to one family, in which there have been two previous victims.——Smallpox has broken out at Port Colborne, Ont., and the local board of health has ordered the vaccination of all public and high school children at the expense of the town.

Hospital News.—In connection with the subscription of $1,000 to the St. Michael's Hospital Fund, Toronto, from Mrs. Norman Allen and Dr. H. M. Allen, Mrs. Allen has advised that she has set aside the sum of $2,000, the income from which is to be used as a prize for the nurse taking the highest standing in surgery at the hospital. The purpose of this prize is to establish a permanent memorial to the late Dr. Allen, who was one of the founders of St. Michael's Hospital.

Dr. Banting Awarded Rosenberg Medal.—Dr. Frederick G. Banting, Toronto, has been awarded the Rosenberg Medal which is given annually by the University of Chicago to the person conferring the greatest benefit on humanity. Dr. Banting, who was awarded the medal for the discovery of insulin, has already been awarded the Nobel Prize, the John Scott Medal from the City of Philadelphia, an annual grant of $7,500 for life from the Canadian government, the Reeve Prize of the University of Toronto, and has been appointed to the newly created chair of research at the University of Toronto. The $1,000,000 Banting Research Foundation has been organized in his honor.

University News.—Rougier Brothers of Montreal have donated $5,000 to McGill University Faculty of Medicine, Montreal, to enable a student to study applied anatomy in Europe. On his return the student will teach applied anatomy at the university.——Among the recent appointments to the staff of the University of Toronto is that of Dr. William M. Holman, who has received an associate professorship in bacteriology on the faculty of medicine.——The government of Canada will give the sum of $300,000 to Western University Medical School, London, Ont., during the coming year for maintenance, it is stated. This grant is made up as follows: $50,000 for last year's grant which was withheld by the Drury government, and $250,000, the amount recommended by the Royal Commission last year.

Personal.—Dr. John Watson, vice president of Queens University, Kingston, Ont., will announce his retirement from Queens University after fifty-two years of service there.——Dr. William Harley Smith of Toronto was recently elected president of the Academy of Medicine, Toronto. Membership in the association now totals 760.——Dr. Walter A. Sangster, Stouffville, Ont., has been elected president of the board of trade.——Dr. Russell G. MacRobert, formerly of London, Ont., has been appointed associate neurologist to the Lenox Hill Hospital, New York City.——Dr. Forbes Godfrey, minister of health in the Ontario government, was the guest of honor at the hospitals of the city of London, Ont., recently, in celebration of Hospital Day. Dr. Godfrey, who was also guest of honor at the Rotary Club, stated in an address that it is hoped to reduce the cost of insulin to those who can pay for it, from 1.5 cents to 1 cent per unit.

GENERAL

Meeting Date Changed.—The American Child Health Association announces that its next annual meeting will be held in Kansas City, Mo., October 14-16, instead of, as previously announced, October 15-17.

Soldiers' Memorial Dedication.—The dedication of the Camp Merritt Memorial will take place, May 30. Those who were on duty at Camp Merritt (just northwest of Jersey City, N. J.) during the World War are requested to be present. General Pershing will speak.

National Committee for the Prevention of Blindness.—At the annual meeting of the association in New York recently the following officers were elected for the ensuing year: president, Hon. William Fellowes Morgan, New York; vice president, Dr. F. Park Lewis, Buffalo, N. Y., and secretary, Miss Winifred Hathaway, New York.

American Gastro-Enterological Association.—At the annual meeting of this association, held May 5-6, at Atlantic City, N. J., the following officers were elected: president, Dr. Arthur F. Chace, New York; vice presidents, Drs. Charles G. Lucas, Louisville, and Frank Smithies, Chicago; secretary, Dr. John Bryant, Boston, and treasurer, Dr. Clement R. Jones, Pittsburgh.

Missing Physicians.—Lieut.-Col. Courtney P. Grover, Dayton Military Home, who has been missing since April 22 (THE JOURNAL, May 10, p. 1558), was found in Cincinnati.——The body of Dr. Frederick E. Fyle of Geddes, S. D., was found in his automobile in Rhyne Creek, near Yankton, where the car had gone through a washed out bridge (THE JOURNAL, May 17, p. 1627). A reward of $2,000 had been offered for his discovery.

Mental Hygiene Legislation Committee.—At a recent meeting of the executive committee of the National Committee for Mental Hygiene the advisory committee on legislation for 1924 was appointed as follows: Dr. George M. Kline, Boston, chairman; Dr. L. Vernon Briggs, Boston; S. Sheldon Glueck, Boston; Dr. James V. May, Boston; Dr. William C. Sandy, Harrisburg, Pa., and Dr. H. Douglas Singer, Chicago. The new committee was appointed as a result of frequent requests for a "model commitment law."

Physiotherapy Organizations.—The American Academy of Physiotherapy has been duly incorporated under the laws of Massachusetts. This society has been organized to facilitate the advancement of physiotherapy. Eligibility for membership is primarily membership in the American Medical Association and thorough knowledge of physiotherapy. It is the intention of the society to combat, as far as possible, undue and unwarranted claims for treatment. Dr. Frank B. Granger, Boston, was elected president, and Dr. Byron Sprague Price, New York City, secretary. A special meeting will be held in Chicago, June 9.——The third annual convention of the American Physiotherapy Association will be held at the

Drake Hotel, Chicago, June 10-11, under the presidency of Dr. Inga Lohne, Brookline, Mass. Dr. Ray Lyman Wilbur, President of the American Medical Association, will deliver the opening address.——At the sixth annual meeting of the Western Physiotherapy Association in Kansas City, Mo., April 17-18, Dr. Loraine A. Marty, Kansas City, was elected president and Dr. Charles W. Fassett, Kansas City, secretary.

Provisional Birth and Mortality Figures for 1923.—The Department of Commerce announces that birth rates for 1923 were lower than for 1922 in twenty-one of twenty-seven states for which figures for the two years are shown. The highest 1923 birth rate (34.8 per thousand population) was for cities of Wyoming, and the lowest (15.6) for rural districts of Montana. Death rates for 1923 were slightly higher than for 1922 in twenty-five of thirty-six states shown for both years. Connecticut, New York and North Carolina have the same rates for 1923 as for 1922, and Colorado, Idaho, Montana, Nebraska, Oregon, South Carolina, Utah and Washington have lower rates for 1923. The highest 1923 death rate (20.3 per thousand population) was for cities of Mississippi, and the lowest (6.5) for the rural districts of Idaho. Infant mortality rates for 1923 are generally higher than for 1922; seventeen of twenty-seven states show higher rates. The highest 1923 infant mortality rate (117) was for cities of South Carolina, and the lowest (51) for the rural districts of Utah and the cities of Washington. Infant mortality rates for both years in twenty-five of forty-five cities of 100,000 population or more, in 1920, are lower than those of the previous year. The highest 1923 rate (110) is for Richmond and the lowest (48) for Spokane.

Milbank Fund Health Demonstrations.—The first county health unit to be established in New York state was recently created in Cattaraugus County, where a five-year intensive health demonstration is being carried out under the auspices of the Milbank Memorial Fund. The five-year program will consist of work in administration and general operation of rural health work, tuberculosis, communicable diseases, school hygiene, maternity, infancy and child hygiene, mental hygiene, industrial hygiene, sanitation and food inspection. Cattaragus County is a typical rural district with a population of approximately 72,000. Dr. Leverett D. Bristol, county health officer and former health commissioner of Maine, is in charge, with Dr. Stephen A. Douglas as director of the bureau of tuberculosis and Dr. Clarence A. Greenleaf, director of the county school hygiene work. Other demonstrations are being conducted in Syracuse and New York City, where the Bellevue-Yorkville district has been chosen for a systematized health demonstration. In Syracuse, Dr. Walter M. Brunet, director of the department of medical measures, has recently completed a report of the study of the facilities for the diagnosis, treatment and public health control of gonoccocal and spirochetal infection in the city. This work was also undertaken at the request of the Milbank Foundation. Dr. Haven Emerson, professor of public health administration, Columbia University, acted as consultant during the time that the study was being made.

LATIN AMERICA

Scientific Study in Brazil.—Dr. Alexander Hamilton Rice, vice president of the American Geographic Society, has organized an expedition for scientific study in Central Brazil for the coming year, and has invited Dr. Richard P. Strong, director of the department of tropical medicine at Harvard University, to conduct a medical expedition in this same region for purposes of scientific investigation. Other members of the medical expedition will be Dr. George C. Shattuck, Dr. Joseph Bequaert and Mr. Ralph Wheeler.

Personal.—Dr. J. N. Corpas, rector of the University of Bogota, has been appointed minister of public instruction by the president of Colombia. Dr. Roberto Franco succeeds him as rector.——Dr. V. Putti, the Italian orthopedic surgeon, was tendered a banquet by the profession at Rio de Janeiro on his recent visit. He lectured at the medical school on "Arthroplasty" and at the local medical society on "Congenital Dislocation of the Hip Joint."——Dr. Alberto Chueco was the guest of honor at a farewell banquet at Buenos Aires recently, as he was leaving for a study of surgical methods in other countries. He is on the editorial staff of the *Semana Médica*.——The University of Buenos Aires has named the clinical pavilion of the Institute for Experimental Medicine in honor of the late Dr. Helena Larroque de Roffo, the efficient helpmate of the director, Dr. A. Roffo.——Dr. E. B. Demaria has been commissioned by the Argentine public health service to collect statistics and other data on the prevalence of trachoma and other diseases of the eyes in Argentina. The local officials have been ordered to cooperate with him in his trip through the country.

FOREIGN

Dr. Eliot Honored in France.—The Harvard Club of France gave a dinner recently at the Marquery in honor of the ninetieth birthday of President Emeritus Eliot of Boston.

New University.—A new university has been founded by the republic of Armenia at Erivan. The professors on the medical faculty have been educated mostly in Germany.

News of Societies.—The Medicosurgical Society of Bologna celebrated its one hundredth anniversary, May 23.——The next congress of the International Society of the History of Medicine will be held at Geneva in July, 1925. This will be the fifth convention of the society. Dr. Cumston, Geneva, will preside.

Women's Medical Meeting.—A meeting of the Council of the Federation of Medical Women was held at the London School of Medicine for Women, April 12, under the presidency of Lady Barrett. A plan of action was adopted in regard to equal pay for men and women for all positions in the profession. It was stated that public authorities were attempting to obtain medical women at a lower salary than medical men. Lady Barrett, Dr. Christine Murrell, Dr. Jane Walker, Dr. Dickinson Berry and Miss Louisa Martindale were elected to represent the federation on the council of the Medical Women's International Association, which will convene in London, July 15-17.

Personal.—The suit brought against Professor Spinelli of Naples for malpractice was dismissed by the court as a false and malicious accusation.——Professor Tambroni delivered the historical address at the recent celebration of the centennial of the Ferrara Accademia di scienze mediche e naturali.——Subscriptions are being received for an organized tribute to Professor d'Arsonval in honor of his pioneer work in biologic physics. He was Brown-Sequard's successor in the College de France, where he perfected his arsonvalization method. Dr. Belot, rue de Bellechasse 36, Paris, is the chairman of the committee in charge. The occasion for the tribute is his recent promotion to a high position in the Legion of Honor.

Cremation Society of England.—The Cremation Society of England celebrated its fiftieth anniversary, April 29. According to the annual report, during 1923, the total number of cremations in Great Britain was 1,986, a decrease of twenty-three on the figures of 1922, due, it is thought, to the abnormally low general death rate during the year. A conference will be held at Wembley Exhibition in August, when the committee formed last year to draft a bill amending the law relating to death certification will report. In answer to a questionnaire asking parliamentary candidates their opinion, 290 candidates out of 330 were in favor of the reform of death certification and of adopting the practice of cremation in industrial areas.

Society News of Paris.—The National Congress of Ophthalmology met in Paris, May 12.——The Congress of Legal Medicine was held in Paris, May 20-28.——The Paris Society of Biology and affiliated societies throughout France met in Paris, June 5.——The National Congress of Surgeons will convene in Paris, October 6, under the presidency of Professor Tuffier.——A National Orthopedic Congress will be held in Paris in October.——At the last monthly meeting of the American Medical Society of Paris, Dr. Fuller of the American Hospital, Paris, gave an address on the "Treatment of Diabetes by Insulin." Dr. Walter Kraus, assistant neurologist to Bellevue Hospital, New York, and Dr. Douglas McAlpine, London, gave addresses on epidemic (lethargic) encephalitis. French, American, English and Japanese physicians attended the meeting.

Deaths in Other Countries

Dr. **Richard Paltauf,** professor of general and experimental pathology at Vienna, founder and chief of the state serum institute and of the service for prevention of rabies, aged 66.——Dr. **Ismael da Rocha,** retired surgeon general of the Brazilian army, vice president of the Academia Nacional de Medicina, founder and president of the Antituberculosis League in Brazil, aged 66. It is said of him that the entire history of military medicine in Brazil was his work.——Dr. **José A. Barraquer,** emeritus professor of ophthalmology at the University of Barcelona.——Dr. **Antonio da Silva Ferreira,** a leading practitioner of Recife, Brazil, aged 66.

Government Services

Dates for Opening Army Schools Changed

For the purpose of better administration, Surg.-Gen. M. W. Ireland of the army has changed the dates of courses of instruction at the special service schools of the medical department of the army. Heretofore, the basic course of the medical field service school at Carlisle, Pa., has been given from September 1 to December 31. The basic course at the army medical school adjacent to the Walter Reed Hospital, Washington, D. C., has been given from January 1 to June 30. On the ground that the climate at Carlisle in the late spring and early summer is more suited for field work than the weather in November and December, it has been decided to have the basic field course at Carlisle from February to June, and the course for the National Guard and for reserve officers at that school from September 1 to October 15. The revised plan contemplates the holding of the basic courses at the army medical school in Washington from September 1 to February 10, and the advanced course for officers from February 1 to June 1.

Veterans' Bureau Legislation

Because of inability on the part of officials in the Veterans' Bureau to agree on definite legislation to remove existing inequalities of the medical corps of the bureau, it now seems certain that no legislation will be passed at this session of Congress permanently reorganizing and upbuilding the medical section of the service. In 1918, Congress created a reserve corps of the Public Health Service for duty "in time of national emergency." Such emergency arose almost immediately, owing to postwar conditions, whereby the Public Health Service was charged with the duty of providing for the care and treatment of discharged sick and disabled members of the military forces. The government at that time started a hospitalization program more far reaching than was ever before witnessed. This work was in charge of the Public Health Service until 1922, when, by order of the President, the hospitals and their administration were transferred to the director of the Veterans' Bureau. This executive order transferred several hundred physicians of the Public Health Service to the Veterans' Bureau. The number included the greater part of the reserve corps on active duty. It was necessary for Congress to provide for the pay of these physicians, and on more than one occasion they have been left without status, because, being commissioned officers, few have a civil service status, and probably few would accept such status.

In the bill codifying the laws relating to the Veterans' Bureau, Senate bill 2257, the existing law authorizing allowances to commissioned medical officers from the Public Health Service not enjoyed by other medical personnel of the bureau was omitted. The result of such omission was to place all physicians of the bureau in the same status as civilian employees. This bill passed the Senate in this form. The World War Veterans' Committee of the House has, however, reported this bill in an amended form, and such bill contains the following provision relating to the commissioned personnel of the Public Health Service serving in the Veterans' Bureau:

> All commissioned personnel detailed or hereafter detailed from the United States Public Health Service to the Veterans' Bureau shall hold the same rank and grade, shall receive the same pay and allowances, and shall be subject to the same rules for relative rank and promotion as now or hereafter may be provided by law for commissioned personnel of the same rank or grade or performing the same or similar duties in the United States Public Health Service, and for all administrative and disciplinary purposes while so detailed, shall be subject to the exclusive direction and control of the director of the Veterans' Bureau.

The Senate bill was sponsored by Senator Reed of Pennsylvania, and the House bill by Congressman Johnson of South Dakota; both are ex-service men. The Reed-Johnson bill is scheduled for passage by agreement among Senate and House leaders as a veteran aid measure. If the Reed-Johnson bill becomes a law in the form above shown, it will be merely a temporary expedient. It will make provision for that part of the reserve corps on duty in the Veterans' Bureau. The requirement, however, that members of one part (by far the largest part) of the corps of one service "shall be subject to the exclusive direction and control" of the head of another branch of the government creates a situation almost without precedent in government administration.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 28, 1924.

Epidemic Encephalitis

Epidemic (lethargic) encephalitis has been recognized in this country only in the last five years. At first it was regarded as a curiosity, but the number of cases has increased so much that it now occupies an important place in the group of infectious diseases. In the first three weeks of April, 649 cases were notified, and the total so far this year has reached 1,409, compared with 454 during the whole of 1922, 1,470, in 1921, 890 in 1920, and 541 in 1919. The following figures for the present year show a serious increase, which is giving concern to the health authorities:

Week Ended	Cases	Week Ended	Cases
January 5	10	March 1	86
January 12	10	March 8	97
January 19	18	March 15	88
January 26	18	March 22	126
February 2	19	March 29	157
February 9	37	April 5	190
February 16	33	April 12	206
February 23	61	April 19	253

It has been noticed that the disease does not select particularly those living in poverty and insanitary surroundings. On the contrary, if it has any choice it visits the homes of the thrifty and the professional classes. The mortality rate is about 50 per cent., and those who survive are often affected by one of the many disabling sequelae.

The Narrowing British Face

Lecturing to the dental board at the Royal College of Surgeons, Sir Arthur Keith stated his belief that future discoveries would reveal a common cause for enlarged tonsils, adenoids, irregular growth of teeth and contracted palates. All these, he asserted, could be traced to a disturbance of the elaborate system of hormones, which interfered with the normal course of growth. The nature of the disturbance was a mystery. It might be due to a diet in which some vital quality was missing or to insufficient light. Whatever the solution, his researches had shown that the shape of the mouth was changing, the palate becoming more narrow and the face longer. These conditions were rarely found in British skulls of the pre-Roman period, nor were they normal in Saxon skulls until the eighteenth century, when England became industrial on a great scale. Keith has devised a rapid method for recording and measuring the shape of the mouth by getting students and others to bite a piece of card coated with wax. This has shown him that a large percentage of the population have not even the remnants of molar teeth, and that at least 25 per cent. have grossly deformed palates and corresponding dental irregularities unknown in the stone and bronze ages. Keith emphasized the fact that the teeth of nearly every person in England overlap; that is, the teeth of the upper jaw overlap those of the lower. This was never found in skulls of the early periods; in all these the teeth met evenly.

The Labor Party and the Hospitals

An important conference of hospital, medical and kindred organizations, organized by the labor party, has taken place. The labor party paints an exaggerated picture of the defects of the present system, as it does of the general political system, and brings forward the same remedy—state control—which, overlooking its serious drawbacks, they regard as a universal panacea. In a letter to the conference, the labor

prime minister wrote: "Our hospital system—if such a chaos as now exists can be dignified by such a title—has been and still remains a symptom of our inadequate civic organization. In intention it typifies the good-heartedness of our people; in practice it exemplifies the cooperation of hand and brain workers in the work of the world for which our movement stands; but in effect it falls far short of the achievements that its keenest friends and supporters desire. Pending the day when the country becomes more fully aware of the need for prevention—the prevention of destitution as of disease—we cannot stand idly by and allow our curative centers to suffer from neglect. The time has come for a survey of the whole field of hospital activity; for a finer realization of the part that medical men and nurses, hospital managers and administrators, play in the life of the people, and above all for the devising of ways and means whereby the great services thus rendered may be pursued free from the unhealthy methods by which some of our hospitals have had to seek finance in these latter days."

Dr. Somerville Hastings, a labor member of parliament, spoke on "The Labor View." He said: "The present system, without state aid, has failed to provide what the nation needs. There is a great deficiency of beds, 160,000 being needed." He objected to the system of patients' payments to general hospitals, which led to hardships among poor sufferers. "There is the danger," he remarked, "of the hospitals becoming the nursing homes of the middle classes, while those for whom they were originally intended may be forced on the tender mercies of degrading poor-law institutions." Labor wanted to see a complete hospital system capable of giving the best possible treatment to all needing it, by means of treatment centers in outlying districts, local or cottage hospitals in the smaller towns, county hospitals, and national hospitals in the largest cities, with intimate cooperation between all hospitals.

Viscount Knutsford, president of the London Hospital, criticizing the statement as to the extent to which general hospitals were being appropriated by the middle and professional classes, said that an inquiry of all the hospitals showed that 43 per cent. of the patients were so poor that they could not pay anything at all toward the cost of their treatment, and it could not be counted as any abuse of our hospitals that they should be used by the artisan or lower middle or professional classes if such men could not afford to pay for the treatment and came within the description of "necessitous poor."

In their demands, the labor representatives showed extraordinary inconsistency. The labor member of parliament mentioned above asked that "poor-law infirmaries should be taken over by the local health authorities and converted into first class general hospitals." Now these infirmaries are state supported and state controlled and in administration and, above all, in personnel are far behind the voluntary hospitals. Hence there is the demand for their improvement. It is the individualism of the voluntary system that has secured the cooperation of the philanthropists and the leaders of the medical profession, and produced our voluntary hospital system, which has achieved a standard unattained by our state controlled hospitals, and is the envy of other countries.

Mr. Bishop Harman, chairman of the hospitals committee of the British Medical Association, presented the view of a large part of the medical profession. There were, he said, only two bodies with defined hospital policies—the labor party and the British Medical Association. The policy of the labor party was revolutionary; the policy of the British Medical Association, evolutionary. The policy of the labor party was state action by ownership, finance and control from the center. The policy of the British Medical Association was the development of the existing practice, in which, while there was state action in fields in which it could be best employed, there was local, independent and voluntary action in that part which came closest to the daily life of the people. The policy of the labor party had received little support from physicians, for they were so saturated with the triumph of evolution in physical and mental development, both in the individual and in the race, that revolutionary methods had little charm for them. Mr. Harman characterized as absurd the figures of the labor party as to hospital accommodation. England and Wales had ten beds per thousand of population, as against eight in America. The essence of the labor party's policy seemed to be the swallowing up of the hospitals for fear that these charities might be a thorn in the side of a unified state scheme, which was envisaged. Physicians looked with a friendly eye on the contributory schemes which were such a feature of hospital administration at the present day. They would abolish the greatest fault of the large voluntary hospitals, the overcrowded outpatient departments.

The Need of Medical Observation of Child Offenders

A deputation from the voluntary advisory committee to the children's courts of the medical council of the People's League of Health waited on Mr. Arthur Henderson, the home secretary, to urge the need for expert medical observation, at an early stage, of young persons brought before juvenile courts, and to suggest that a school of observation, similar to the one at Molle, Belgium, should be established for the purpose. Dr. E. D. Macnamara, in introducing the deputation, said that they had long recognized that unwise treatment of the child offender tended to produce deterioration of character and to manufacture the habitual criminal. He urged that accurate knowledge of the mentality of delinquent children, and of the causes producing delinquency, was essential in order that the children might be dealt with justly and satisfactorily. Reformation and cure should be the aim of the juvenile court, and the retributive aspect of punishment should be very much in the background. Cases should be dealt with rather in the spirit of a court of equity than in that of criminal assize.

Dr. A. F. Tredgold, an expert on mental deficiency, said that the services of an expert should be available in every children's court; that magistrates should be instructed to make use of such professional aid, and that appropriate and adequate means, not for punishment, but for treatment should be provided where such were needed. The home secretary, in replying, said that the home office already was warmly in agreement as to the importance of such observation, and he read an extract from a letter recently sent by his direction to a local authority urging the appointment for this purpose of medical men to be attached to places of detention for juveniles. With regard to the precise methods, he was not sure that it would be best to follow exactly the Belgian arrangement, but he said that all the points made by the deputation would be fully considered.

PARIS

(From Our Regular Correspondent)

April 25, 1924.

Illegal Use of the Title of Doctor

A recent law created the title of doctor of veterinary medicine, and provided penalties ranging from 500 to 10,000 francs for (1) those who assume illegally the title of doctor of veterinary medicine, or the title of veterinarian, and (2) those who, being doctors of veterinary medicine but not doctors of medicine, omit after their doctor's title the phrase "of veterinary medicine." Prof. E. H. Perreau of the University of Toulouse faculty of law, an authority on medical jurisprudence, states that this law seems to end the controversy which caused so much discussion a few years ago of

the question, Is the assumption of the title "doctor," without further explanation, punishable by law? In Germany, Austria and Italy the title "doctor" is widely used in referring to persons who stand out from the common throng by reason of being well informed in some branch of knowledge; but in France the use of doctor without further reference signifies the person is a doctor of medicine. Whether or not the use of the title "doctor" in a way that misleads the public is subject to penalty is therefore an interesting question. If the title is assumed to extort money, the person concerned may be legally liable. Can one go further in punishing the illegal use of the title, irrespective of actual extortion? Article 259 of our Penal Code provides a fine of from 500 to 10,000 francs for "any one who, wrongfully and in order to attribute to himself an honorary distinction, publicly assumes any title." The question has been frequently raised whether the usurpation of university degrees of all kinds and by various procedures does not come within the scope of this article. Perreau holds that it covers such cases and that the penalties prescribed apply to usurping the title "doctor," even without the addition of the words "of medicine." The recent law pertaining to "doctor of veterinary medicine" supports this interpretation, since the veterinarian has not now a right to call himself "doctor." It can therefore be affirmed that in France the use of the title "doctor" by any person who does not have the diploma of a doctor of medicine comes within the scope of Article 259 of the Penal Code.

A Misuse of Prophylactic Propaganda

In previous letters I have mentioned the repeated protests of the medical profession against the advertisements of charlatans, which are found in public comfort stations, and which promise to cure syphilis in two weeks. These protests have at last been heard and this deceitful propaganda has been suppressed. Now in place of quack advertisements, two posters distributed by the Comité national de propagande d'hygiène et d'éducation prophylactique are found. One poster calls attention to the antituberculosis campaign and gives the address of antituberculosis dispensaries of the Office public d'hygiène sociale; the other points out the danger of venereal disease and gives the address of hospitals and the dispensary of prophylactic hygiene where syphilitics may receive free treatment. Dr. J. Noir, editor-in-chief of the *Concours médical*, protests against this new form of "clandestine publicity," which, he thinks, is likely to bring disrespect on antituberculosis and antivenereal prophylaxis in the eyes of the general public. It is being repeated everywhere that there are no disgraceful diseases but simply—diseases, and that victims of venereal disease and tuberculosis are not criminals but patients, worthy of respect and consideration. But in order to inform them regarding the dispensaries where treatment can be obtained it is thought advisable to resort to the secrecy of the comfort station! Would it not be better to exhibit these posters, which have nothing objectionable about them, in the usual places where everybody could see them?

Responsibility of the Surgeon in Leaving a Compress in the Abdomen

Like other citizens, physicians are responsible for injuries to the life or health of others which result from their negligence. The plaintiff who holds another legally accountable for injuries must establish that the negligence of which he complains constitutes a tort and that his injuries resulted in consequence thereof. But, to prove that the omission of a professional act by a physician constitutes a tort rendering him accountable for damages, the plaintiff must establish that the omission was of such a nature that a physician of experience and knowledge, using ordinary care and prudence, would not have been guilty of the same offense. According to a recent decision of the superior court of Colmar, a surgeon who, in performing a laparotomy, leaves a sponge in the abdomen, is not necessarily guilty of a tort by this fact alone, provided it results from circumstances that arise during a regular examination, and provided the most prudent, conscientious and experienced surgeon might, under similar circumstances, have committed such an omission. In a strict sense, a surgeon is responsible for the acts of assistants in the operating room, but he cannot alone bear all the criticism. During a laparotomy, an assistant or nurse is assigned to count the sponges that are used in the abdomen and afterward withdrawn. After the operation, the assistant collects these sponges (which are often numbered consecutively), checks them and verifies the count. During this time, the surgeon is giving his whole attention to the patient. Can he be held responsible for the carelessness of an assistant who neglects to inform him that a sponge has been left in the operative field? Is he responsible if the surgical nurse failed to do her duty? A surgeon's assistants are often selected by the hospital administration and not by the surgeon himself. The question is, therefore, complex, and, to determine the degree of responsibility that rests on every one concerned, the judge must demand in detail an account of the operation and the rôle assigned to each assistant. The facts must be determined in such cases before the point of law can be settled.

Poisoning from Cakes

Some time ago, a party of twenty-five persons ate cakes that were bought at the same bakery. Signs of poisoning were soon observed in several members of the party, and one person died several days later. The judge of instruction charged with opening an inquiry has received a report of the experts he appointed to make the investigation. The eggs used in the preparation of the cakes were good (though rather old), but the shells of the eggs were contaminated on the outside. In five cakes examined, *B. coli* was found. The shells might have been contaminated through contact with dirty fingers, when the cakes were prepared, or with other infectious material. An examination of the employees of the bakery did not reveal any typhoid carriers. The experts expressed regret in their report that no hygienic regulations affecting the cleanliness of public kitchens and bake-shops had as yet been established.

A Laboratory of Scientific Research

The administrative council of the Ecole dentaire of Paris has decided to create at headquarters a laboratory of scientific research, which will (1) contribute to the development of odontostomatology; (2) serve purposes of instruction, and (3) afford dentists the means for scientific investigations required in their work. The laboratory is equipped to perform all kinds of research work in pathologic anatomy, particularly that which pertains to dental surgery and to the bacteriology of buccal ulcerations; dental caries, pyorrhea, abscesses and osteomyelitis. When requested by the practitioner, autovaccines will be prepared also.

The Cancer Crusade

The Franco-Anglo-American league against cancer has just held its annual general assembly at the Faculty of Medicine of Paris, under the chairmanship of M. Paul Strauss, former minister of public health. At this meeting, which was attended by the Marquis de Fanna, representing the ambassador of Spain, M. Justin Godart announced the establishment under the patronage of the king, the queen and the queen mother of Spain, of the Spanish league against cancer. It was created last month on the same plan as the French league and with a similar program.

HOLLAND

(From Our Regular Correspondent)

April 16, 1924.

The Antimalaria Crusade

The report for 1923 of the Commission on Malaria deals particularly with two methods of destroying mosquitoes; namely, the oiling of water surfaces, and destruction during the winter. The former method has been employed in certain districts about Amsterdam, Hoorn and Alkmaar, but in general the rural water courses have not been covered with oil. Destruction during the winter has advantages over oiling. Careful investigation of the winter habits of mosquitoes may be of great practical value. Dr. Hehewerth, who is studying the movements of mosquitoes in winter in several districts, has shown that they are found chiefly in pig-pens and stables. A campaign for the destruction of mosquitoes cannot be effective unless it is somewhat continuous, for many of them remain concealed in cracks in the walls for long periods. That the work may be truly effective, they should be hunted and destroyed every day in the barns and stables.

In 1923, the central laboratories of Amsterdam, Zaandam and Haarlem made, respectively, 2,248, 341 and 108 microscopic examinations of human blood, with 672, eighty-two and seventeen positive results, respectively. This was a considerable decrease over 1922. Practicing physicians report that there are much fewer cases of malaria, and that the quantity of quinin used has decreased from 330 kg. in 1922 to 168 kg. in 1923.

Visit of Foreign Health Officers

The tour of public health officers inaugurated by the health section of the League of Nations will include Holland, and the guests are expected soon. The public health societies and other organizations have combined to give the visitors a bird's-eye view of the public health service in the Netherlands. Every day an address will be given on some definite phase of public health work, and, when possible, each subject will be demonstrated by a field trip to one of the institutes. The carefully prepared program leads one to expect that the visitors will be very much interested. The first reception, April 24, at The Hague, will comprise a general assembly and an address on the organization of public health in the Netherlands and the collection of medical statistics. There will be talks on the antialcohol and antituberculosis campaigns, and then a visit will be made to the antituberculosis dispensary of The Hague. At Rotterdam, the organization of the antivenereal campaign will be explained. At Leiden, a lecture on tropical hygiene will be delivered at the Institute of Tropical Medicine, and the pharmacologic institute will be visited. The laboratory of social hygiene, and the vaccine and serology departments, will be visited at the city of Utrecht. The party will spend fifteen days in Amsterdam, inspecting and studying the industries, the water works system, the antimalaria campaign, the cancer crusade, food inspection, institutions for the insane, public baths, hospital organization, and the training of hospital personnel. Talks on the open-air schools, the schools for backward children, and the disinfection and quarantine services, with visits to these places, have been planned. Excursions will be made to Arnhem to study the meat inspection service; to Endhoven, the modern factory city constructed by the Philips establishments, and to the Heerlen mines. Finally, a week's study of the communal services of the large cities has been arranged for those who wish to take part.

Trachoma

"Five years of the Campaign Against Trachoma" is the title of a report recently published by the ophthalmologists Smit and Wibaut, on work done by the trachoma policlinic in Amsterdam. Opened in 1918 at the instance of Professor Staub, this clinic has increased in importance. After the policlinic was opened, Dr. Wibaut began a campaign to discover in the schools those who had this disease. The largest number of victims was listed between 1919 and 1921. Since 1921, there has been a progressive decrease in the number of cases. This may be confirmed by an examination of the reports of patients visited in the policlinic and of those found in the schools. This work seems to have been crowned with success. The authors hope now that within ten years or so trachoma will have practically disappeared.

Esophagitis with Hematemesis

Addressing the Netherlandic Society of Pathologic Anatomy, Dr. De Groodt called the attention of his colleagues to the hematemesis that sometimes follows surgical operations and that occurs in advanced cachectic conditions. Hematemesis of dark blood usually portends a fatal outcome within from twenty-four to thirty-six hours. In studying the pathologic anatomy, including numerous microscopic specimens, Dr. De Groodt came to the conclusion that the hematemesis is not due exclusively to autodigestion of the esophageal tunics by the gastric juice. He prefers to ascribe the cause to a venous stasis not only in the esophagus but also throughout the digestive tract, producing a passive hyperemia with occasional marked extravasations of blood. The microscopic preparations show a hyperfunctioning of the mucous glands, and the secretion is frankly acid. In view of these facts, the author considers that we are dealing with a true manifestation of autodigestion, and that we need not hesitate to prescribe alkalis in large doses.

Dr. De Groodt does not insist on calling this condition esophagitis, the name proposed by Professor De Vries. He thinks that the absence of micro-organisms is sufficient evidence to keep it out of the category of affections characterized by infection and inflammation.

Instruction of Backward Children

Children physically or mentally backward had been until recently turned over to private societies, which looked after their education. The government has come to believe that it is its duty to provide instruction for this class of children, since the public is interested in the character of instruction they receive.

The act of 1920 pertaining to primary education brought about what may be regarded as a revolution in school affairs. It provided for special primary instruction "in schools to be established for children who, owing to physical or mental defects, or for reasons of public policy, cannot take part in ordinary class instruction, or whose conduct necessitates their instruction in a special manner and under special conditions." Thus, henceforth the instruction of backward or abnormal children will be officially recognized. Orders have been issued regulating these special schools and defining the class of children who will attend them. The central government will, under certain conditions, grant subsidies to communal and local school administrations that establish schools for backward children.

It is evident that the new classes will necessitate a partial reorganization of the whole school system and require an increase in the number of teachers. The law provides that classes for deaf mutes shall contain ten pupils; for the blind, twelve pupils; for children with defective hearing, fourteen, and for backward children, eighteen.

Dr. Van Boorthuijzen gave in the *Nederlandsch Tijdschrift voor Geneeskunde* statistics on the number of backward and abnormal children in Holland and the number of special schools that will be required. It is estimated that there are two weakminded children of school age for every thousand inhabitants.

VIENNA

(From Our Regular Correspondent)

April 18, 1924.

Outbreak of Food Poisoning Near Vienna

In a monastery near Vienna, where many persons came for free meals, an outbreak of food poisoning occurred a few days ago. Six hundred persons had partaken of the regular midday meal; of these, 160 were attacked within the next twenty-four hours with severe symptoms, and three deaths occurred within a few hours after the onset. All the affected persons were soon located and treated by a staff of physicians and the pathologist of one of the leading Vienna hospitals. They succeeded in tracing the infections to a cook, who had returned from the hospital three weeks before, where he had been treated for typhoid. Apart from that cause, the pathologist was able to point out that sausages used in that day's menu were not unimpeachable, so that most likely a double source of illness was present. Stringent precautions were taken to prevent the spread of infection, so that the outbreak remained confined to the first 160 persons affected.

Statue of Professor Zuckerkandl

In memory of Emil Zuckerkandl, the anatomist, who for years was a leading member of the Vienna medical faculty, a statue was recently unveiled in the hall of the university. It represents the scientist in the act of explaining to his audience the function of a human joint, one of his favorite researches. Modern rhinology owes a great debt to Zuckerkandl, whose painstaking investigations into the anatomy of the accessory nasal sinuses form the basis for the development of nasal surgery. He bequeathed his beautiful specimens to the Vienna University, where they are known as the Zuckerkandl collection.

Combating Tuberculosis Among Vienna Children

Nearly 40 per cent. of the school children in this city show a positive Pirquet sign for tuberculosis, but only 4 per cent. are really tuberculous. The remainder are in danger of developing open tuberculosis under unfavorable conditions. Measurements, conducted in the course of a routine examination of all children listed for the free meal in schools given by the Help the Children Fund, show that the children after their tenth year have reached the average height, but are below the average weight, and are anemic and nervous. In the welfare center, 560 orphan children are under supervision both of whose parents have succumbed to tuberculosis. To bring about an improvement of conditions, Professor Moll negotiated with the authorities of this country and of Italy with the result that the Italian government has placed 4,000 beds at the disposal of the Austrian Society for Tuberculous Children. These beds are in first class institutions on the former seacoast of Austria, now owned by Italy. The cost will be so low that even our reduced means will suffice to cover them. The latter point is most important. Heretofore such children, 4,163 in 1923, were sent to places on the seacoast of Germany; but under present conditions, this is too expensive. In the Italian resorts, noted for their sunshine, the expense of each child will be about 40 cents daily. About 80,000 liras has been raised by the Krankenkassen, enough to enable 4,000 children to stay at the seaside for two months. The parents have to contribute a small part of the expense. For children not connected with the Krankenkassen, the government will bear part of the expense. This plan is prophylactic: it does not include the tuberculous child, but those in danger of developing tuberculosis, i. e., predisposed by habit, environment, undernourishment or disposition, and not under 6 years of age. A home for predisposed children from 2 to 6 years of age is also contemplated. Infants and school children are already cared for, but not these youngsters. Professor Moll is endeavoring to arrange for 100 such children near Vienna, and, if possible, on the seacoast too. It is intended to have the whole plan in working order this summer.

Private Patients and Hospital Fees

The controversy that arose from Professor Hochenegg's attack on the ethics of the general practitioner is still raging, and the end is not in sight. But already several complaints and reproaches could be proved to be absolutely unfounded. One complaint was that practitioners who directed their private patients to "paying beds" in hospital wards received a commission for so doing. The general medical council now makes public the agreement between the state board of health, which controls these beds in general hospitals, and the medical council, which was signed years ago. The chief idea was to prevent the practitioner from losing his patient by "drifting." As many physicians cannot take their patients to their own wards, not having any, and as many patients cannot afford a private hospital room but are not poor enough to obtain free hospital service, a number of "paying beds" were arranged for in all hospitals, where the head of the ward may treat the patient in cooperation with the house physician. The fees are reduced in comparison with private fees, and the hospital charges an appropriate reduced fee for the practitioner. This is no commission, but a regular fee, charged according to services rendered, and specified as follows: call at the patient's bed; assisting at an operation; consultation with the head of the ward, and services at the admittance or dismissal of the patient. The patient knows how much his house physician receives, and there is a clear understanding from the beginning. This system works to the satisfaction of both parties, and letters in the daily papers by private persons show that the public understands it and does not feel wronged by it. The original suggestion, that the head of the ward should receive the fees of the house physician and then pay him, was not accepted by the medical council, which purposely emphasized the publicity of all financial transactions arising out of the cooperation of these parties. Since this method has been satisfactory, negotiations are going on now to arrange a similar system in all other hospitals. It is intended to devote from 6 to 10 per cent. of the total number of beds to this purpose.

The Prize of the Austrian Cancer Society

The Austrian Anti-Cancer Society has awarded its 1923 prize to Dr. Lipschütz for research into the origin of experimental tar cancer of the mouse, and to Dr. Nather of the surgical clinic in Vienna for research into the pathology and therapy of carcinomatous diseases. Both these men have been working on cancer for many years. As the prize is open only to Austrians, there were few competitors; but this does not reflect on the quality of the work of the two prize winners.

Roentgenograms of the Vermiform Appendix

At a recent meeting of the Vienna Medical Society, Dr. Rappaport showed a series of roentgen-ray plates and photographs in which the radiographic meal had entered the appendix. He has observed this condition for a long time. Other authors have noted the occurrence, but believed it was only accidental. Dr. Rappaport, however, thinks that this condition is always pathologic, although the absence of the filling of the appendix does not prove it is normal. In some cases, the opaque substance remained for twenty-four hours or more in the appendix, and some of these patients have been operated on. In all of them the mucous membrane was in a catarrhal condition, the muscular coats were thickened,

and the entire wall of the appendix was much thicker and harder than normal. The author thinks that these changes are responsible for the filling of the appendix. Nonfilling, however, may be due to a stricture or total absence of the lumen, and rapid disappearance of the filling may be normal, as opposed to a filling which remains from twenty-four to thirty hours. In the latter case, removal of the appendix is justified. It may be the only symptom of a disease before clinical signs of mischief become manifest. In all cases of diminished mobility of the abdominal contents, this sign should be looked for.

Acceptance by German Scientists of Appointments in Austrian Universities

The ministry of education has succeeded in securing scientists from Germany to accept three important appointments in Austrian seats of learning. Professor Reche from Hamburg takes over the chair of anthropology at the Vienna University, which has been vacant since the death of Professor Pöck two years ago. Dr. Müller, professor of anatomy at the University of Tübingen, has accepted the chair of anatomy at Graz, which had been vacant for many years. The increase of medical students in that city is the result of the unsatisfactory conditions for the first-year students in Vienna because of the lack of dissecting material, which necessitated reopening the second anatomic institute in Graz. A third acquisition, which, however, has only a secondary bearing on medicine, is that of Professor Wegener, heretofore director of the naval institute in Hamburg, who has been appointed professor of meteorology in Graz. These appointments show that conditions prevailing with us have something advantageous to induce such men to leave Germany and teach in Austrian universities.

Tendency for the Number of Small Families to Increase

A study of the census taken since 1900 shows that there is a constant and marked tendency for families to become smaller. The average number of inhabitants in a Vienna flat in 1910 was 4.51. In the next three censuses, it dropped to 4.23, 3.55 and 3.39. This condition in all towns and larger communities is about the same. In the rural districts, the average number of inhabitants per household was from 6.70 to 7.10, but the figures now show also a distinct tendency to diminish, and in 1923 the average number was 4.65. In 1900, the households consisting of only one person amounted to 5.12 per hundred; ten years later they were 6.23 per hundred. The number of persons housed in old age asylums, monasteries and invalid houses has also increased. Out of 100 married masculine "chiefs of the household" in Vienna, 27.43 had no children; in Graz, 35.71. Of the widowers or divorced masculine "chiefs of the household," 43 per cent. in Vienna and 55.44 per cent. in Graz had no children. Fully 20 per cent. of the total Vienna households comprise only three persons; nearly as many households comprise four persons or only two; less than 40 per cent. of the households have more than two children or other persons, servants and tenants included. If we deduct all these, we find that more than 30 per cent. of all families in 1910 had no children, 25 per cent. had one child, and about 20 per cent. two children; only 23 per cent. of the total had more than one child. Similar conditions exist in other towns, Graz again being worst with 42 per cent. of the families without children. Considering occupation, we find that 40 per cent. of the members of free vocations (public services, state services, artists, teachers, physicians, lawyers) were childless; 26 per cent. had one child; 18 per cent., two children, and only 16 per cent. had more than two children. The census for 1923, which comprises the results of the five war years, would no doubt show a marked advance in all these tendencies to diminish the size of the family. But lack of funds stopped further statistical work of this kind. Therefore it is at present impossible to say whether the increase of the urban population is due to the better fertility of the rural immigrants of the towns, or to a gradual diminution of the mortality rate.

BERLIN

(From Our Regular Correspondent)

April 26, 1924.

Lecture on Hereditary Transmission

At the last meeting of the Berlin Society of Eugenics, Prof. Erwin Baur, director of the institute of research on heredity, gave a lecture on the relation of the natural sciences to the theory of hereditary transmission. Everybody knows that heredity is a fact, but the greatest ignorance prevails concerning the mode of hereditary transmission. Why are there marked differences between children of the same parents? There are many causes, but they can be grouped under three heads. One group is entirely independent of heredity. For example, sickness of the mother during pregnancy, or of the offspring in infancy or childhood may determine special peculiarities in children, even though the brothers and sisters may be remarkably alike otherwise. But these so-called acquired characters are never transmitted through heredity. A person of moderate gifts may be educated to be very efficient, but he will never transmit other than moderate gifts to his offspring. The attempts to elevate the negroes of the United States by giving them the same educational advantages the white population receives have necessarily failed. Of the second group of causes we know a number of facts that have the force of law. Professor Baur illustrated the mendelian law by the mating of a black and a blue rabbit. Black is more dominant than blue, and is therefore found three times as often in the later progeny than is the blue. From the union of a pure-blooded type of brown-eyed man with a blue-eyed woman, also a pure-blooded type, only brown-eyed children may be expected in the first generation. If the offspring should propagate only among themselves, there would be later, as with the rabbits, three times as many descendants of the more dominant type with brown eyes as with blue eyes. But there are a great many dominant qualities. If the two rabbits differ not only in color but also in length of fur, one having short, the other long fur, then any one of four combinations may result—black with long fur, black with short fur, blue with long fur or blue with short fur. If a third characteristic is added—for example, a pied appearance of the fur in one parent, then eight combinations will result. This holds true only of pure-blooded, unmixed types.

But among the races of mankind there are few unmixed types—the Germans are a mixture of two or more races. When the laws of heredity seem to break down, we speak then of mutation, and an individual shows qualities that were not present in the forebears but which nevertheless are transmitted. Many such qualities arise, owing to disturbed development. Among persons living at present there is scarcely one who does not have some sign of degeneration; for example, myopia. The more races that enter into the complex of a people, the greater the possibility of differentiantions among succeeding generations. This can be illustrated by a man who has a black and a white necktie, a white and a colored shirt, a black and a white coat, likewise a black and a white vest, and black and also white trousers, socks, shoes and gloves. If he decides to change every day the combination of articles he puts on, it will take nearly a half year to exhaust the possible combinations. This explains the many differences between brothers and sisters, even

though the main type always obtrudes. A third factor is selection. A mixed race propagates in a rather uniform manner, if the same conditions for propagation persist undisturbed. But conditions have changed very much. In the glacial epoch, human beings lived in damp, gloomy caves, and the weaklings perished at an early age, frequently before they had offspring. The awkward, backward men commonly perished in battle. Only the most able grew to maturity and left descendants. Today, however, the constitutionally inferior have abundant opportunity to propagate, for those who perished among primitive peoples are now preserved. A woman who bore children with difficulty in olden times was likely to perish, and if a mother could not nurse her infant, the child died. The weaker children were thus eliminated in a natural manner, whereas now this process of natural selection has almost ceased. This leads to a gradual falling off in robustness. And now we face the dangers of birth control. People with the best mental and physical qualities in Germany have the fewest children. That effects a most unfavorable selection, which may soon bring about degeneration in any people. An American inquired into the history of the progeny of a feebleminded woman vagabond. He found that she had 2,820 descendants, most of whom were murderers and criminals, and that more than half of the females were prostitutes. At the time the investigation was made, there were 600 descendants in prisons, psychopathic hospitals and other public institutions. Race suicide brought about the downfall of Greece and Rome, and Germany is confronted by the same peril. It is the duty of every individual in choosing a life partner to consider health of body and mind a prime asset. The biologic inheritance is more important than economic possessions, and every one should therefore have at least an elementary knowledge of the laws of inheritance.

The Excess of Births Over Deaths in Saxony

The Saxon Bureau of Statistics has issued a bulletin on the vital statistics of Saxony for 1923, in which it appears that the excess of births over deaths has been further diminished. The excess in 1922 was 33,358, and in 1923 it was reduced to 26,707. In the postwar period, up to 1920, there was a substantial increase in the number of marriages and births in Saxony, but there has not been so good a showing since 1920. Since 1919, the mortality rate has fluctuated less than during the period just preceding the war. In 1923 there was a considerable slump in the number of marriages, although the number was larger than just preceding the war. But the decrease of more than 11,000 marriages as compared with the previous year 1922 leads one to assume that the former high marriage rate will not be reached again soon. The decrease in the number of living births is not quite so great (9,528), although the number of living births in 1923 was but little higher than in the years 1915-1918, and almost 30,000 less than in 1914, the last normal year. The number of stillborn has decreased considerably. Of the living births, 76,515, or 83.02 per cent., were legitimate (as against 83.85 per cent. the previous year). The infant mortality on the basis of 100 living births was 12.16 in 1923, or somewhat lower than in 1922 (12.61), and was thus in harmony with the rate that has prevailed since the war, which is considerably lower than that before the war. As the number of living births decreased about 9,500, and the total number of deaths was 3,000 less than in 1922, the net loss in the excess of births over deaths, compared with the previous year, was about 6,500. The excess of births over deaths was only 26,707, or about 50 per cent. of that for 1913, and only a little more than a third of the excess noted during the first years of the present century, which is the most favorable period known in Saxony.

Marriages

OGDEN DOREMUS KING, Lieut., M. C., U. S. Navy, Port Au Prince, Haiti, to Miss Catherine Helen Snyder of Altoona, Pa., May 3.

BEVERLY DOUGLAS, Nashville, Tenn., to Miss Josephine Hutton of Columbia, March 10.

JAMES H. BURROWS, Williamsport, Pa., to Miss Sarah H. Kaye of Emporium, April 23.

ARTHUR CHASE AMBLER to Miss Mary Barber, both of Asheville, N. C., April 30.

EDWARD ALFRED FRANKLIN to Miss Anne Judith Barr, both of Los Angeles, April 10.

FRANK E. SELOVER to Miss Beatrice H. Green, both of Eugene, Ore., recently.

DWIGHT M. ERNEST, Peoria, Ill., to Miss Eunice Daly of Princeville, recently.

BENJAMIN JABLONS to Miss Rose Geraldine Fried, both of New York, May 4.

GRACE B. MITCHELL to DR. IVER OLAF EIDE, both of Chicago, May 13.

Deaths

Ernest LaPlace ● Philadelphia; Medical Department of the Tulane University of Louisiana, New Orleans, 1884; University of Paris, France, 1886; Medico-Chirurgical College of Philadelphia, 1894; died suddenly, May 15, of heart disease. Dr. LaPlace was born in New Orleans, July 9, 1861. He was professor of surgery at the Medico-Chirurgical College of Philadelphia (now the Graduate School of Medicine of the University of Pennsylvania), 1892-1924, and on the staffs of the Medico-Chirurgical, Polyclinic and Misericordia hospitals, the American Hospital for Diseases of the Stomach, Philadelphia, and the State Hospital for Criminal Insane, Farview. He was a member of the Philadelphia Pathological Society, the Philadelphia Academy of Natural Sciences, the French Society of Anatomy and at the time of his death was president of the Medical Club of Philadelphia. Dr. LaPlace was an officier d'académie (Palmes Académiques) and a member of the Legion of Honor of France. He was inventor of one of the first forceps for intestinal anastomosis, and the author of many articles on surgery of the brain and intestines.

William St. Clair Gordon ● Richmond, Va.; Medical College of Virginia, Richmond, 1879; a founder and formerly professor of physiology and clinical medicine at the University College of Medicine, Richmond; emeritus professor of medicine at his alma mater; at one time physician to the Laurel (Va.) Reformatory, and the City Prison, Richmond; author of "Recollections of the Old Quarters"; aged 66; died, April 23, of pernicious anemia.

William Page Harlow ● Boulder, Colo.; University of Michigan Medical School, Ann Arbor, 1899; president 1911 of the Association of American Medical Colleges; formerly professor of medical diagnosis, and dean emeritus at the University of Colorado School of Medicine, since 1916; served in the M. C., U. S. Army, during the World War; aged 56; died, May 11.

Robert Edward Soule ● Newark, N. J.; Long Island College Hospital, Brooklyn, 1899; member of the American Orthopedic Association; assistant professor of orthopedic surgery at the New York Post-Graduate Medical School; served in the M. C., U. S. Army, during the World War; aged 51; died, April 30, of pneumonia.

William Sidney Boardman ● Boston; Medical School of Harvard University, Boston, 1886; member of the New England Otological and Laryngological Society, formerly instructor in laryngology at Tufts College Medical School; member of the board of health and board of education; aged 65; died, May 6, following an appendectomy.

Dunnleigh Corey ● Lieut., M. C., U. S. Navy, Washington, D. C.; University of California Medical School, San Fran-

cisco, 1916; served during the World War; instructor in clinical chemistry at the U. S. Naval Medical School; aged 34; died, April 28, at the U. S. Naval Hospital.

Joseph Marshall Husted, Woodstown, N. J.; Baltimore (Md.) Medical College, 1897; member of the Medical Society of New Jersey; member of the board of health; on the staff of the Salem County Memorial Hospital, Salem; aged 49; died suddenly, April 29, of cerebral hemorrhage.

Katherine M. Cook, New Wilmington, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1907; member of the Medical Society of the State of Pennsylvania; served with the American Red Cross, in Europe, during the World War; aged 42; died, May 1, following an operation.

Grace Wintersteen, Harrisburg, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1893; member of the Medical Society of the State of Pennsylvania; on the staff of the Harrisburg State Hospital; aged 59; died, April 3.

Robert Moses Littell, Jr., Opelousas, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1921; formerly on the staff of the U. S. Marine Hospital, No. 14, New Orleans; aged 26; died, May 12, of tuberculosis.

Hugh Benjamin Mahood, North Emporia, Va.; Medical College of Virginia, Richmond, 1899; member of the Medical Society of Virginia; served in the M. C., U. S. Army, during the World War; aged 53; died suddenly, April 24.

George Francis Dodge, Athol, Mass.; Baltimore (Md.) Medical College, 1906; member of the Massachusetts Medical Society; aged 52; died, April 28, at the Johns Hopkins Hospital, Baltimore, following a tonsillectomy.

Jasper Wayne Hensley, Okmulgee, Okla.; Memphis (Tenn.) Hospital Medical College, 1896; formerly member of the state board of medical examiners and president of the First National Bank; aged 57; died, April 30.

William H. Smith, Heidenheimer, Texas; University of Nashville (Tenn.) Medical Department, 1896; member of the State Medical Association of Texas; aged 68; died suddenly, March 18, of cerebral hemorrhage.

Edward M. Curry, Hastings, Colo.; Marion-Sims College of Medicine, St. Louis, 1899; member of the Colorado State Medical Society; aged 57; died, May 2, at a hospital, in Trinidad, of appendicitis.

Gilbert Lee Coffman, Independence, Kan.; Marion-Sims College of Medicine, St. Louis, 1896; member of the Kansas Medical Society; aged 55; died, April 27, following an operation on the gallbladder.

Harry Leroy Leap, San Antonio, Texas; University of Texas Department of Medicine, Galveston, 1910; member of the State Medical Association of Texas; aged 48; died, April 26, of heart disease.

Charles M. Lane, Brick Mill, Tenn.; Tennessee Medical College, Knoxville, 1901; member of the Tennessee State Medical Association; aged 50; died suddenly, April 19, of heart disease.

Max Abramson, Brooklyn; Eclectic Medical College of the City of New York, 1892; member of the Medical Society of the State of New York; aged 61; died, May 11, following an operation.

Thomas J. Ward, Ruxton, Md.; University of Maryland School of Medicine, 1877; Confederate veteran; aged 79; died, April 26, at the University Hospital, Baltimore, of senility.

Eleanor Haines, Newark, N. J.; Woman's Medical College of Pennsylvania, Philadelphia, 1871; member of the Medical Society of New Jersey; aged 78; died, April 23, of senility.

Luther Franklin Ferguson ✠ Gates, Tenn.; Memphis Hospital Medical College, 1908; aged 55; died, May 2, at a hospital in Dyersburg, following an operation for peritonitis.

George Dennis Paschal, Hurtsboro, Ala.; Medical Department of the University of the City of New York, 1871; aged 77; died, April 22, at a hospital in Tuscaloosa, of senility.

Leonard Safford, East Durham, N. Y.; Medical Department of the University of the City of New York, 1883; aged 71; died, April 10, at Kenwood, of cerebral hemorrhage.

Gustav Grant Fisch ✠ New York; Medical Department of Columbia College, New York, 1892; on the staff of the Lenox Hill Hospital; aged 55; died, April 27, of heart disease.

Harry J. Cranmer, Edinburg, Ohio; Cleveland University of Medicine and Surgery, 1893; member of the Ohio State Medical Association; aged 58; died, April 26, of uremia.

John Bunyan LeGwin, Wilmington, N. C.; Tulane University of Louisiana School of Medicine, New Orleans, 1911; aged 39; died, February 3, of uremia.

John Birch Douglass, Talbotton, Ga.; Atlanta Medical College, 1893; member of the Medical Association of Georgia; state senator; aged 64; died, April 27.

Jean Allen Lightfoot ✠ Texarkana, Ark.; Medical Department of the Tulane University of Louisiana, New Orleans, 1892; aged 62; died, May 7, of cerebral hemorrhage.

Peter Brockington Bacot, Florence, S. C.; Medical College of the State of South Carolina, Charleston, 1861; Confederate veteran; aged 86; died, April 25, of senility.

Eliphas Lawrence Linder, Tennessee Colony, Texas; Medical College of the State of South Carolina, Charleston, 1883; aged 65, was found dead in bed, April 22.

George William Carter, Boulder, Colo.; University of Michigan Medical School, Ann Arbor, 1853; Civil War veteran; aged 97; died, April 22, of senility.

Andrew K. Kline, Bordentown, N. J.; New York Homeopathic Medical College and Hospital, 1888; aged 64; died, March 16, of chronic myocarditis.

Rollin Andrew Goudy, Newcomerstown, Ohio; Jefferson Medical College of Philadelphia, 1888; aged 60; died suddenly, April 23, of heart disease.

Henry Sabin Leake, Williamstown, Mass.; Medical Department of Columbia College, New York, 1891; aged 58; died recently, at Territet, Switzerland.

George Jesse Ellis ✠ Covington, Ky.; Medical College of Ohio, Cincinnati, 1896; aged 48; died, April 28, at St. Elizabeth's Hospital, of septicemia.

John Edgar Humphreys, Conkling, Tenn.; University Medical College of Kansas City, Mo., 1898; aged 56; died, April 21, of cerebral hemorrhage.

Joseph Patrick Sheehy ✠ Sioux City, Iowa; Creighton Medical College, Omaha, 1915; aged 32; was killed, May 14, in an automobile accident.

C. I. Shoop, Racine, Wis.; Hahnemann Medical College and Hospital, Chicago, 1883; aged 73; died, May 12, at Hollywood, Calif., of senility.

Charles Lewis Gotham ✠ St. Paul; Rush Medical College, Chicago, 1911; on the staff of the St. Paul Hospital; aged 58; died, April 28.

Thomas Addison Berwick, Princeton, Wis.; Medical College of Indiana, Indianapolis, 1889; aged 56; died, May 2, of chronic nephritis.

Frank Dallas Mankin, Kewanee, Ill.; Eclectic Medical Institute, Cincinnati, 1893; aged 56; died, May 8, following a long illness.

Allen J. Reeves, Terre Haute, Ind.; Physio-Medical College of Indiana, Indianapolis, 1875; aged 77; died, April 28, of carcinoma.

Lot H. Hughes, Dennison, Ohio; College of Physicians and Surgeons, Baltimore, 1882; aged 72; died, April 25, of cerebral hemorrhage.

Mary D. Frederick, Des Moines, Iowa; College of Physicians and Surgeons, Keokuk, 1884; aged 82; died, April 22, of senility.

Harrison I. Shull, Auburn, Neb.; American Medical College, St. Louis, 1883; aged 86; died, March 24, at Barneston, of senility.

Samuel H. Windham, Tahoka, Texas; Atlanta (Ga.) College of Physicians and Surgeons, 1901; was shot and killed, April 21.

Frank J. Prunty ✠ Geneva, Ohio; Starling Medical College, Columbus, 1898; aged 52; died in April, following a long illness.

William H. Harrison, Cottondale, Fla.; Kentucky School of Medicine, Louisville, 1889; aged 65; died, April 22.

Samuel E. Munsey, New Mount Pleasant, Ind. (licensed, Indiana, 1897); aged 80; died, April 29, of senility.

Walter John Brown ✠ Danville, Ill., Rush Medical College, Chicago, 1891; aged 56; died, May 8, of septicemia.

J. C. Jamison, Gillham, Ark.; Memphis (Tenn.) Hospital Medical College, 1894; aged 64; died, April 22.

Jin Fuey Moy, Pittsburgh; Jefferson Medical College of Philadelphia, 1890; aged 62; died, May 4.

John Nolan, Brooklyn; Bellevue Hospital Medical College, New York, 1883; aged 68; died, May 7.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

PROMONTA NOT ACCEPTED FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized the publication of the following report. W. A. PUCKNER, Secretary.

Promonta (manufactured by the Chemische Fabrik Promonta G. *m. b.* H. Hamburg, Germany, and distributed in the United States by the Acme Pharmaceutical Co., Chicago) is said to be "an organic preparation from nervous matter of the central nervous system combined with polyvalent vitamines, lime, iron, hemoglobin, and soluble albuminoids." The following "analysis" is furnished:

Lipoid. Phosphor	4	per cent.
Albumine	26	per cent.
Org. Calc. u. Ferr Salze	2½	per cent.
Haemoglobin	1	per cent.
Vitamin halt. Frakt	4	per cent.
Kohlehydrate	56	per cent.

The absurdity of the statement concerning "4 per cent." of unknown substances such as "Polyvalent Vitamines" is obvious. Promonta is reminiscent of the "Nerve, brain and skin foods," "nerve tonics," etc., in vogue in the United States a generation ago before the passage of the Food and Drugs Act; like them it is recommended for "neurasthenia," "all kinds of fatigue and exhaustion," "anaemia," "bloodlessness," "impaired vitality," etc. The statements as to composition and "analysis" are also similar: an "organic preparation from nervous matter of the central nervous system, combined with polyvalent vitamines," "lime," "iron," "albuminoids," carbohydrates, etc. The only definite statement is that it contains 1 per cent. of hemoglobin. The inclusion of "4 per cent." of "polyvalent vitamines" (source not stated) is a modern touch as is also the reference to experiments on animals (with pictures) which had been made to grow more rapidly by the addition of "Promonta" to their usual diet.

Like other preparations of this kind, the chief if not indeed the only reason given for taking it is the fact that the manufacturers advise it. Of course, there are testimonials: a rather touching one from a dentist (suffering from nervous depression and sleeplessness), who was so impressed by its effects upon a patient (who before taking was in a truly lamentable condition—such that the dentist could not do the slightest operation upon her) that he tried it on himself with most satisfactory results: secured sleep after the usual hypnotics had failed, had an increased appetite, etc.

Promonta is an irrational mixture of secret composition exploited under preposterous claims. Physicians who might use it would initiate its ill-considered and useless consumption by the public.

TERSUL HILLER NOT ACCEPTED FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report. W. A. PUCKNER, Secretary.

"Tersul Hiller," manufactured by Wilhelm Hiller, Hanover, Germany, is a preparation of silicon and calcium proposed as "an Adjuvant to the Treatment of Tuberculosis, Rachitis, &c." Robert Wollheim, whose address seems to vary from Orange, N. J., to Buffalo, N. Y., acts as the distributor for the United States. Physicians are told that it is:

"Composed essentially of coincidently water-soluble silica and water-soluble calcium salts as shown by the following approximate percentage formula: Silica (new process) 4½ gr., Calcium lactate 7½ gr., Calcium hypophosphate [hypophosphite?] ¾ gr., Calcium phosphate 7½ gr., calcium fluorid 1½ gr., Calcium carbonate 60 gr., Magnesium phosphate 3 gr., Milk sugar 15 gr."

From this formula it would appear that Tersul Hiller is a mixture containing a silica compound of undeclared composition and a mixture of soluble and insoluble calcium compounds, chiefly calcium carbonate. Yet this statement of composition is contradicted elsewhere in the advertising, where it is stated that "TERSUL HILLER presents silica in combination with hydrochloric acid, while calcium is combined with albumin." It is evident from these quotations that the composition of Tersul Hiller is not divulged. Further, while the advertising contains the statement that "The silica is prepared by an entirely new process discovered by Prof. Gewecke of the University of Bonn, Germany," a search of the indices of *Chemical Abstracts* for the last seventeen years does not show that Gewecke has published anything on silica.

The claim is made that extensive trials by German physicians have demonstrated the value of this silica preparation, but the only definite literature reference given is that to a report in a German pharmaceutical journal (*Pharmazeutische Zentralhalle*, **64**, October 18, 1923, p. 437). This contains merely a brief discussion by "Generalarzt a. D. Dr. Weickert, Dresden," of the reputed benefits of silica therapy and presents no evidence of value. It is a typical proprietary medicine testimonial.

H. Gideon Wells, Director of Medical Research at the Otho Sprague Memorial Institute, has studied the evidence for the use of silica and calcium in tuberculosis. He and his collaborators have recently reached the conclusion that there is no foundation for the use of either calcium or silica in the treatment of tuberculosis, either from the standpoint of theory, controlled clinical observation or experimental results.

The most recent publications of Wells and his collaborators contain the conclusion that a review of the literature on the use of silica preparations in the treatment of tuberculosis, human and experimental, leads to the conclusion that the evidence for the value of silica therapy is far from establishing that any beneficial results are obtained from the use of this element and a reinvestigation gave no support to the use of silica preparations in tuberculosis ("The Influence of Silicon Compounds on Experimental Tuberculosis," Mary E. Maver and H. Gideon Wells, *American Review of Tuberculosis*, Vol. 8, No. 4, 1923). Further, the latest publication of Maver and Wells ("Studies of the Biochemistry and Chemotherapy of Tuberculosis," Mary E. Maver and H. Gideon Wells, *American Review of Tuberculosis*, Vol. 7, No. 1, 1923) states that their studies have failed to produce any experimental evidence which supports the empirical clinical claims that calcium administration has a favorable influence on the course of tuberculous infections.

The Council found Tersul Hiller inadmissible to New and Nonofficial Remedies because (1) there is no acceptable evidence for the therapeutic use of silica preparations, (2) the identity of the silica compound is not declared, (3) the use of the mixture is irrational and (4) the claims for its therapeutic effects are unwarranted.

FERRASSIN NOT ACCEPTED FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report. W. A. PUCKNER, Secretary.

"Ferrassin" like "Tersul Hiller" is marketed by Robert Wollheim. It comes in the form of tablets and capsules. Ferrassin Tablets are said to contain:

"Vegetable Iron 20 per cent., Peptonized Iron and Manganese 5 per cent., Plant Albumin 10 per cent., Milk Sugar 65 per cent."

Ferrassin Capsules are said to be:

"Vegetable Iron 40 per cent., Peptonized Iron and Manganese 10 per cent., Plant-Albumin 20 per cent., Milk Sugar 30 per cent."

No information is furnished in regard to the composition of "Vegetable Iron" or of "Peptonized Iron and Manganese." The preparations are, therefore, essentially secret in composition.

For Ferrassin it is claimed that it is an "Important Advance in Iron Therapy," that it is a "New Discovery," and that it "represents the first fully assimilable plant iron." The claim is also made that the "therapeutic action depends, not merely on assimilable organic iron and manganese, but also on phosphorus and peptonized albumin." No evidence is offered for the highly improbable claim that this iron preparation presents any advantages over established iron compounds. The statements that the phosphorus and "peptonized albumin" contained in the product have therapeutic action or that the "albumin combination favors assimilability of the iron and stimulates secretion of gastric juice and intestinal activity" cannot be accepted.

Ferrassin is inadmissible to New and Nonofficial Remedies, because its composition is secret and it is marketed with unestablished and unwarranted claims.

ZINC-BOROCYL NOT ACCEPTED FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following statement. W. A. PUCKNER, Secretary.

"Zinc-Borocyl," according to the Al-Sano Chemical Products Company, Chicago, is a definite chemical compound, the scientific name of which is "Biborzinc-Tetra-Orthoxy-Benzoic acid" and has the formula "$(C_{14}H_{10}BO_7)_2Zn$."

The label of the trade package gives "Boridiorthotic oxybenzoic acid zinc" as a synonym for Zinc-Borocyl, but it also declares that the product which is marketed is not the substance to which the name "Boridiorthotic oxybenzoic acid zinc" is applied, but that "the contents of this bottle represent a concentrated solution" of this product. The strength of the solution is not given.

In the advertising Zinc-Borocyl is called "A New and More Satisfactory Germicide and Antiseptic." It is explained that because of the shortcomings of previously known products, "Dr. Foelsing of Frankfort—a co-worker of Dr. Ehrlich—started a series of investigations into the matter and finally concentrated his attention on a combination of these well known chemical agents Zinc, Boric acid and Salicylate from which he evolved the preparation now offered under the name of Zinc-Borocyl, having a chemical formula of Boridiorthotic oxybenzoic acid zinc."

From the information furnished the Council and the statements on the label and in the advertising, it may be concluded that "Zinc-Borocyl" is a solution containing the so-called zinc borosalicylate in undeclared amounts. Its exploitation is essentially an attempt to introduce an old German nostrum to American physicians under a new name.

Under the name "Dr. A. Foelsing's Mucosan," a preparation claimed to be zinc borosalicylate was introduced in Germany about ten years ago. Mucosan was analyzed at the University of Giessen by K. Feist (*Apotheker Zeitung*, 1912, p. 306). Feist concluded that the product presented a loose chemical combination of zinc salicylate, salicylic acid and boric acid, and that a product having properties identical with those of Mucosan is obtained when a mixture of boric acid 2.11 gm., Zinc salicylate (hydrated) 5.63 gm. and salicylic acid 2.86 gm. is dissolved in a little water and the solution evaporated to dryness.

Zinc-Borocyl is offered as a germicide, antiseptic and astringent. It is proposed for "Cuts, Wounds, Ulcerations, Burns, Sores, Infections, Etc.," "Eye conditions, such as Conjunctivitis," "Gynecological Purposes," "Genito-Urinary conditions, particularly in specific local infection such as urethritis," "infectious conditions of the nose and throat." No evidence is offered to show that Zinc-Borocyl has any advantage over established zinc salts.

The Council declared Zinc-Borocyl inadmissible to New and Nonofficial Remedies because (1) its composition is not correctly declared; (2) it is an unoriginal preparation marketed under a proprietary, non-informing name; (3) the recommendations for its use are not upheld by acceptable evidence, and (4) the available information fails to show that the product claimed to be zinc borosalicylate has any advantage over established zinc salts.

Correspondence

NEUROSYPHILIS AND MALARIA

To the Editor:—Within the last few years, much interest has been aroused by the possibility that general paralysis might be favorably affected by certain acute febrile infections, notably malaria. Experimental work has been done in which blood of malarial patients in which parasites were found was injected directly into the veins of paralytic patients, and improvement and even cure of these patients has been reported.

During a period of eight years in Hainan, China, I have seen more than 6,000 hospital inpatients, and more than 20,000 outpatients. Hainan is in the tropics, and malaria is literally a universal disease. Probably all of the 3,000,000 people of Hainan harbor the malaria parasites in their systems; probably 90 per cent. of these have one or more attacks of malaria during the course of a year, and many people die each year from malaria.

The tertian and estivo-autumnal types are most frequently seen. In many cases there is double infection, and also mixed infection. The quartan type is very rarely encountered.

Also syphilis is one of the commonest diseases in Hainan. The primary, secondary and tertiary forms are seen in the clinic daily. Hereditary stigmas are common in children and adults. It would be difficult to give an accurate estimate of the number of people in Hainan who are infected with syphilis. The diagnosis has to be made entirely from clinical findings, as it has not been possible in the early stages of the medical work here to do the accurate laboratory work in these cases. However, the figure certainly cannot fall short of 50 per cent., or perhaps 60 per cent., of the population. The secondary and tertiary stages of the disease are very destructive at times, and immense gummas are seen in the clinics and wards.

However, a striking feature of syphilis in Hainan is that symptoms of neurosyphilis are rarely seen. In eight years in Hainan, I have not seen a case of general paralysis, and I have seen only two or three cases in which the diagnosis of early tabes dorsalis was made.

Because of the extent of syphilis in Hainan, it has always been a matter of interest that general paralysis and tabes dorsalis are not frequently seen. I have thought that it might be due perhaps to the attenuation of the virulence of the spirochete owing to the prolonged heat of the tropical climate of Hainan, or that it might be due to a particular strain of the spirochete found here which either exhausts its possibilities by the damage it does to the other organs of the body, or else has no affinity for the nervous system; or that it might be due to some racial difference in the blood of the Chinese, enough to prevent serious damage to the nervous tissues; or perhaps some kind of immunity has been established in the Chinese race after centuries of infection with syphilis.

However, while any or all of these may be factors in accounting for the general absence of neurosyphilis in Hainan, the possibility that the universal infection with malaria, in active and latent form, may serve to prevent the spirochete from invading the tissues of the central nervous system has to be considered.

Extensive experience in Hainan has proved the general infection with malaria, and the coexistence of malaria with syphilis, together with the remarkable absence of general paralysis and tabes dorsalis. If future investigation establishes for malaria curative properties in cases of general paralysis and tabes dorsalis, the absence of these manifestations of neurosyphilis in Hainan may well be attributed to the protective value of malaria infection. Conversely, with

the introduction of quinin in Hainan, and the reasonable expectation that malarial infection may be reduced, as it already has been reduced in a remarkable way in certain villages, it will be interesting to note whether general paralysis and tabes dorsalis will begin to make their appearance.

Nathaniel Bercovitz, M.D., Kachek, Hainan, China.

SHEET MICA IN BRAIN SURGERY

To the Editor:—Referring to the article on "Repair of Dural and Brain Defects" by Drs. Halstead and Caylor (The Journal, April 26), permit me to call attention to the value of sheet mica (stove isinglass) for this purpose. I once published an article on the subject pointing out the superiority of this (mineral glass) to others as a covering for exposed and damaged brain tissue.

Sheet mica can be obtained at any hardware store or, in emergency, removed from the glass windows of heating stoves. It can be split to any amount of thickness from a solid block to that of the thinnest tissue paper. It is smoother than glass; absolutely nonirritant, indestructible, nonadherent to the tissues: a window for observation of the part on which it is applied; is elastic and difficult to break, and can be cut with scissors into whatever size or shape required. Not least of its virtues, it may be sterilized instantaneously by the highest degree of flame heat without injury. The lightness of this substance precludes its slipping out of place after insertion, as so often is the case with metal plates. Stitched overlapping of its circumference secures any extent of convexity when desired.

I have given mica considerable clinical trial—one patient has carried such a plate (3 by 4 cm. in diameter) in the parietal region for some eight years without the slightest irritation being evidenced. I have found it very satisfactory not only in cranial surgery but also, as previously pointed out, as a protective covering applied in small, shingle-like layers over skin grafts, which can be seen and studied beneath it.

Evan O'Neill Kane, M.D., Kane, Pa.

"IMMUNOLOGIC OBSERVATIONS IN AUTUMNAL HAY-FEVER"

To the Editor:—In his paper on immunologic observations in autumnal hay-fever (The Journal, May 3), Dr. Harry S. Bernton discusses the Scheppegrell four-group classification of hay-fever pollens as published in the *Boston Medical and Surgical Journal*, July 12, 1917. This, however, has since been revised, the new classification of three major and five minor groups having been published in the *New York Medical Journal and Record*, June 20, 1923.

In this report, the following statement is made: "While the grouping of hay-fever pollens from a biologic"—and botanic; the ragweeds and artemisias, for instance, both belong to the *Compositae* family, but are divided into separate groups—"viewpoint has proved of great advantage in simplifying the diagnostic tests and treatment of hay-fever, our experience has demonstrated that the most common member in the patient's vicinity, of the group to which he reacts, should be selected for his immunization."

Regarding the ragweed group, we have already called attention to the occasional necessity of specific immunization against more than one member of the group (Elements of Success in the Treatment of Hay-Fever, *New York M. J.* **116**:196 [Aug. 16] 1922), as follows: "In the Southern states, a common complicating cause of fall hay-fever is the marsh elder, *Iva ciliata*, which grows in moist soil from Illinois to Nebraska and south to Louisiana and New Mexico. This pollen belongs to the ragweed group, but gives a much higher reaction, so that frequently a special course of immunization must be carried out."

Regarding the prevalence of hay-fever weeds, field observations do not always form a reliable index of pollen infestation. In New Orleans, for instance, the giant ragweed forms 95 per cent. of the ragweeds in the city, but the atmospheric pollen plates demonstrate that 75 per cent. of the fall pollen is from the short ragweed, and is brought in from the surrounding country.

In 1921, we treated a series of 137 cases of fall hay-fever, responding to the ragweed group, with the pollen extract of the giant ragweed, most of these cases being in our hay-fever and asthma clinic at the Charity Hospital. The results recorded did not differ materially from those of the routine method in which the short ragweed pollen extract was used.

Regarding hybridization and morphologic similarity, there are more than 200 varieties of grasses in the Southern states, few of which will hybridize. With few exceptions, however, all the pollens of those that we have tested give a similar skin reaction differing only in degree, and we have already used seventeen of these individually to immunize successfully against all the pollens of this group.

The clinical observations stated in Dr. Bernton's report, however, are instructive and add materially to our information on the immunizing study of hay-fever.

William Scheppegrell, M.D., New Orleans.

"MOVEMENT OF THE DIAPHRAGM WITH PATIENT IN LATERAL POSTURE"

To the Editor:—Dr. Gerald B. Webb has called attention to an article published by Adams and Pillsbury in 1922 (Adams, R. D., and Pillsbury, H. C.: Position and Activities of the Diaphragm as Affected by Change of Posture, *Arch. Int. Med.* **29**:245 [Feb.] 1922). This described the physical signs dependent on such changes, which were the subject of my article in The Journal, April 19. This article was unfortunately overlooked by me, just as Adams and Pillsbury overlooked the original description of the position and activities of the diaphragm in the lateral posture by Hoffbauer and Holzknecht (Die Veränderungen des Standes und die Exkursionbreite des Zwerchfelles in den verschiedenen Korperlagen, *Mitt. a. d. Lab. f. radio. Diag. u. Therap.*, 1907). The whole subject is also reviewed in two recent papers, which were not published at the time my paper was written (Webb, G. B., and Sevier, J. A.: The Diaphragmatic Excursion and Mediastinum in the Lateral Recumbent Posture, *Am. Rev. Tuberc.*, March, 1924; The Diaphragmatic Excursion and Mediastinum in the Lateral Recumbent Posture, *Tr. A. Am. Phys.*, 1923). These papers should be consulted by any one who is interested in the subject. In the latter papers, observations are recorded showing that the asymmetry in physical signs over the back with the patient in the lateral posture tend to disappear in the course of about an hour. All four papers agree that the breath sounds are louder on the lower side over the back, at first, the point to be emphasized from the diagnostic standpoint.

Tasker Howard, M.D., Brooklyn.

EGG ALBUMIN AS CULTURE MEDIUM

To the Editor:—In The Journal, April 19, p. 1285, appeared a communication by Dr. W. W. Goodrich reporting the use of egg albumin as a culture medium for the diphtheria bacillus. In this communication, Dr. Goodrich stated that none of the laboratory men to whom he mentioned the medium had ever heard of its use. This comment was followed by a note of the editor that egg albumin was recommended for growing the tubercle bacillus and the leprosy bacillus.

I wish to add that egg albumin has been employed by the Russian Professor Aristovsky for the purpose of cultivating *Spirochaeta obermeieri*, the causative agent of relapsing fever. Aristovsky's technic is as follows: The egg is boiled in water in the usual way until it becomes hard. The albumin is separated from the yolk and cut with a knife into pieces, the volume of which is from 1 to 2 c.c., and placed in test tubes. The albumin of one chicken egg is sufficient for twelve or fifteen test tubes. Eight cubic centimeters of physiologic sodium chlorid solution is added to each tube, after which sterilization is effected by autoclaving at 120 C. for a period of fifteen minutes. Four cubic centimeters of unheated horse serum is added to each tube, and the medium is then ready for use.

Aristovsky obtained very good cultures of *Spirochaeta obermeieri* by the use of this medium. One or two drops of the blood of patients with relapsing fever placed on the medium and kept at a temperature of about 35 C. always gives in a few days a rich culture; from thirty to forty spirochetes, sometimes even more, are found under the microscopic field. The further subcultivation of the spirochetes obtained from human blood is very easy. From the first culture, Aristovsky obtained during a period of three months twenty-three generations.

Aristovsky's method is a modification and a perfecting of that of Noguchi and Hata. The blood spirochetes do not develop in absolute absence of oxygen. However, they are in a certain measure anaerobic, demanding for their growth the addition of a piece of fresh tissue. Noguchi called them aerotropic anaerobes. The medium that he used of ascitic fluid and pieces of fresh sterile tissue is not satisfactory, and he himself says that only one sample of ascitic fluid out of ten is suitable for the purpose.

Hata has successfully prepared cultures of the African spirochetes by using slightly coagulated horse serum with the addition of a piece of fresh tissue, or of a blood clot from horse serum. This medium is considerably more convenient, even for a small bacteriologic laboratory, than that proposed by Noguchi.

The fact that the spirochetes are easily destroyed at thermostat temperature and conserved at low temperatures can be explained by the presence in human serum of a certain harmful substance that is more active at high temperatures than at low ones. It is very important, therefore, to remove this harmful substance. On the other hand, it is well known that certain cytolytic processes are inhibited by heterogeneous serum, particularly by horse serum. Aristovsky found that the spirochetes of relapsing fever grew and multiplied when the mixture contained not more than 20 per cent. of human serum and 50 per cent. of horse serum. He later found that human serum is not at all necessary. Aristovsky never was able to get a rich culture by using Noguchi and Hata's method.

Noguchi asserts that fresh sterile tissue is of great importance, if not of necessity, for the nourishing medium for spirochetes. However, if the fresh tissue is necessary only for anaerobiasis, this can be obtained also by other means. It is probable that the fresh tissue exerts other influences on the medium. These complicated influences are still unknown. It is necessary to bear in mind the pure chemical and physicochemical processes created by the tissue and whose rôle is not clear, as it is not clear where the beneficial effects end and the harmful action begins on the spirochetes. Hence it is important to simplify these processes by removing some of these unknown factors. By substituting fresh tissue and fresh blood clots by the use of albumin of chicken egg, which from a chemical standpoint is a more indifferent body, Aristovsky gets his new method.

JONAS R. KAGAN, M.D., Boston.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

POSSIBLE INFECTION FROM ANESTHETIC APPARATUS

To the Editor:—Please inform me whether there is any danger of spreading respiratory infections, such as influenza, pneumonia, tuberculosis, bronchitis and tonsillitis, by the use of a nitrous oxid-oxygen machine, such as is used by dentists. Should not the mouth and nose pieces, as well as the rebreathing bag and tubes, be sterilized after each gas administration? What is the best method of sterilizing these appliances?

H. W., M.D., Chicago.

ANSWER.—Investigations thus far have not conclusively shown that infections have been carried from one patient to another; however, in justice to patients and for the sake of cleanliness, the inhalers and breathing tubes should be thoroughly cleansed after every administration. Undoubtedly, the danger of carrying infection is greater from a suction apparatus than from a gas machine attachment.

When no pulmonary infection is present, the mask should be washed with soap and cold water, after which the mask and tube (machine end) can be held over the hot water faucet and the hot water allowed to flow through them for several minutes. If a respiratory infection is present, in addition to the washing the mask and breathing tube should be placed in alcohol (65 per cent.) or in a weak solution of mercuric cyanid; the latter is preferable to mercuric chlorid because it does not attack the metal as much. The suction attachments should be washed by drawing cold water through them till all blood and mucus are removed, after which they may be boiled. The cleansing should be done immediately following the operation, before the blood dries and obstructs the lumen of the tube. There need be no hesitancy in using hot water, as it prolongs the life of the rubber tubing.

SIGNIFICANCE OF ALBUMINURIA

To the Editor:—What significance can be attached to finding albumin (2+) in the urine of a man, aged 26, apparently normal, except for a nontoxic unilateral goiter, so far as can be determined at present? Microscopic examinations show a few leukocytes, occasional red blood cells, occasional cylindroids, mucus, and a few uric acid crystals; the specific gravity is 1.018, and the urine is about normal in quantity and color.

F. S. DUNHAM, M.D., Omaha.

ANSWER.—It is a rather difficult matter to state the exact significance of a finding of albumin (2+) in the urine of an apparently healthy man. This is not an infrequent finding in insurance examinations and has often led to the rejection of a perfectly safe risk. There are so many extrarenal causes for an albuminuria that one should be guarded in his statements. Judging from the microscopic finding of occasional red blood cells, it would seem likely that the albumin probably came from the presence of blood, the source of which we cannot judge from the statements submitted. However, it would be well in this case to make repeated examinations of the urine, after thorough intestinal elimination has been established, as it is possible that the albumin may be traceable to irritation of the kidney by products absorbed from a constipated bowel. Albumin, in itself, does not signify a nephritis, but should, of course, be regarded as an indication of at least a beginning irritation of the kidney. Whether or not there is in this case a renal lesion would have to be determined by other factors than the mere presence of albumin in the urine.

REACTION OF SODIUM BICARBONATE AND ACETYLSALICYLIC ACID

To the Editor:—What is the effect of mixing sodium bicarbonate with acetylsalicylic acid? In other words, what is the product formed by mixing the two materials in solution?

FRED H. SMITH, Experiment, Ga.

ANSWER.—In the presence of water, acetylsalicylic acid (aspirin) and sodium bicarbonate react to form sodium acetylsalicylate, with liberation of carbon dioxid.

The sodium acetylsalicylate would then hydrolize to sodium acetate and sodium salicylate, the amount depending on the length of time the solution stood after making. The hydrolysis is comparatively rapid.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, July 8. Chairman, Dr. S. W. Welch, Montgomery.
CALIFORNIA: San Francisco, July 7-10. Sec., Dr. Charles B. Pinkham, 908 Forum Bldg., Sacramento.
COLORADO: Denver, July 1. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
CONNECTICUT: Hartford, July 8-9. Sec., Regular Board, Dr. Robert L. Rowley, 79 Elm St., Hartford.
CONNECTICUT: New Haven, July 8. Sec., Homeopathic Board, Dr. Edwin C. N. Hall, 82 Grand Ave., New Haven; Sec., Eclectic Board, Dr. James E. Hair, 730 State St., New Haven.
DELAWARE: Wilmington, June 17. Sec., Medical Council, Dr. H. W. Briggs, 1026 Jackson St., Wilmington.
DISTRICT OF COLUMBIA: Washington, July 8. Sec., Dr. Edgar P. Copeland, Apt. 104, Stoneleigh Court, Washington.
FLORIDA: Ocala, June 16-17. Sec., Dr. W. M. Rowlett, Citizens Bank Building, Tampa.
GEORGIA: Atlanta and Augusta, June 4-6. Sec., Dr. C. F. Nolan, Marietta.
ILLINOIS: Chicago, June 24-27. Supt. of Regis., Mr. V. C. Michels, Springfield.
INDIANA: Indianapolis, July 8-10. Sec., Dr. William T. Gott, No. 333 State House, Indianapolis.
IOWA: Iowa City, May 29-31; Sec., Dr. Rodney P. Fagen, Capitol Building, Des Moines.
KANSAS: Topeka, June 17. Sec., Dr. A. S. Ross, Sabetha.
KENTUCKY: Louisville, June 9. Sec., Dr. A. T. McCormack, 532 W. Main Street, Louisville.
LOUISIANA: New Orleans, June 12-14. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.
MARYLAND: Baltimore, June 17-20. Sec., Reg. Bd., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore; Sec., Homeo. Bd., Dr. E. H. Wilsey, Chesapeake City.
MICHIGAN: Ann Arbor, June 10-12; Detroit, June 16-18. Sec., Dr. B. D. Harison, 707 Stroh Bldg., Detroit.
MINNESOTA: Minneapolis, June 3-5. Sec., Dr. Thomas McDavitt, 535 Lowry Bldg., Minneapolis.
MISSISSIPPI: Jackson, June 17-18. Sec., Dr. W. S. Leathers, Jackson.
NATIONAL BOARD OF MEDICAL EXAMINERS: Written examinations in Class A Medical Schools. Parts I and II, June 19-21. Sec., Dr. John S. Rodman, 1310 Medical Arts Bldg., Philadelphia.
NEBRASKA: Omaha, June 9-11. Supt., Dr. J. D. Case, University of Nebraska Medical College, Omaha.
NEW JERSEY: Trenton, June 17-18. Sec., Dr. Alexander MacAlister, State House, Trenton.
NORTH CAROLINA: Raleigh, June 23. Sec., Dr. Kemp P. B. Bonner, Raleigh.
NORTH DAKOTA: Grand Forks, July 1-4. Sec., Dr. G. M. Williamson, Grand Forks.
OHIO: Columbus, June 3-6, 1924. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.
OKLAHOMA: Oklahoma City, July 8-9. Sec., Dr. J. M. Byrum, Shawnee.
OREGON: Portland, July 1-3. Sec., Dr. Urling C. Coe, Stevens Bldg., Portland.
PENNSYLVANIA: Philadelphia and Pittsburgh, July 8-12. Sec., Dr. George Becht, Harrisburg.
RHODE ISLAND: Providence, July 4-5. Sec., Dr. B. U. Richards, State House, Providence.
SOUTH CAROLINA: Columbia, June 24. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.
TENNESSEE: Memphis, June 13-14. Sec., Dr. A. B. De Loach, 434 Madison Ave. Bldg., Memphis.
TEXAS: Austin, June 17-19. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Building, Dallas.
VERMONT: Burlington, June 25-27. Sec., Dr. W. Scott Nay, Underhill.
VIRGINIA: Richmond, June 17-20. Sec., Dr. J. W. Preston, 720 Anchor Building, Roanoke.
WASHINGTON: Olympia, July 8. Sec., Mr. Wm. Melville, Olympia.
WISCONSIN: Milwaukee, June 24-26. Sec., Dr. J. M. Dodd, 220 E. Second Street, Ashland.
WYOMING: Casper, June 9-11. Sec., Dr. J. D. Shingle, Citizens Bank Bldg., Cheyenne.

ADDITIONAL HOSPITALS APPROVED FOR INTERN TRAINING

The following hospitals have recently been approved by the Council on Medical Education and Hospitals for the training of interns. All these hospitals have more than one hundred beds each and furnish a general rotating internship:

Loma Linda Sanitarium and Hospital, Loma Linda, Calif.
Municipal Hospital, Hartford, Conn.
Frances E. Willard Hospital, Chicago.
Toledo Hospital, Toledo, Ohio.
Abington Memorial Hospital, Abington, Pa.
Tacoma General Hospital, Tacoma, Wash.
Queen's Hospital, Honolulu, Hawaii, H. I.

The total number of hospitals now approved for interns is 668, with a total capacity of 194,108 beds, affording a total of 3,866 internships. The complete list of hospitals approved for internships was published in the latest issue of the American Medical Directory, and has been printed as well in separate pamphlets,[1] copies of which have been sent to the offices of all the medical colleges in the United States and Canada.

The approved list has heretofore been published in three sections: I, General Hospitals; II, Nervous and Mental, and III, Other Special Hospitals. Those in Sections II and III have been recommended for physicians who have had general experience or have served a general internship. In line with the modern requirements of medical colleges and state boards for a general rotating internship, and also the increasing tendency to regard a general internship as the proper ground work for specialization, the Council plans, after Sept. 30, 1924, to publish only the list of general hospitals approved for internships. Sections II and III will therefore be discontinued as such, and in lieu of them the Council will publish a list of the hospitals that furnish acceptable special internships open only to physicians who have served a general internship.

Minnesota January Examination

Dr. Thomas S. McDavitt, secretary, Minnesota State Board of Medical Examiners, reports the written, oral and practical examination held at Minneapolis, Jan. 1-3, 1924. The examination covered 15 subjects and included 80 questions. An average of 75 per cent. was required to pass. Thirty-five candidates were examined, all of whom passed. Eight candidates were licensed by reciprocity, and one by endorsement of credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Illinois		(1922)	90.6
Johns Hopkins University		(1923)	84.9
University of Minnesota	(1923, 3) 87.3, 91.8, 93.6, (1923, 25)* 86, 87.2, 87.2, 88.2, 88.3, 88.5, 88.8, 89.1, 89.4, 89.9, 90.1, 90.2, 90.5, 90.6, 90.7, 90.7, 90.9, 91, 91.3, 92.1, 92.2, 92.9, 92.9, 93, 94.2		
Columbia University		(1921)	86.5
University of Toronto		(1919)	86.5
University of Edinburgh, Scotland		(1923)†	94.3
University of Berlin, Germany		(1922)†	89.5
University of Hamburg, Germany		(1923)†	88.7

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Hahnemann Medical College and Hospital of Chicago		(1911)	Tennessee
Indiana Medical College		(1907)	Indiana
University of Louisville		(1921)	Kentucky
Tulane University of Louisiana		(1905)	Louisiana
University of Pittsburgh		(1921)	Penna.
University of Texas		(1921)	Texas
Medical College of Virginia		(1921)	Virginia
University of Toronto		(1905)	N. Dakota

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Northwestern University		(1915)	N. B. M. Ex.

* These candidates have completed their medical course and received their M.B. degrees, and will receive their M.D. degrees on completion of a year's internship in a hospital.
† Graduation not verified.

North Dakota January Examination

Dr. G. M. Williamson, secretary, North Dakota Board of Medical Examiners, reports the oral, written and practical examination held at Grand Forks, Jan. 1-4, 1924. The examination covered 13 subjects and included 100 questions. An average of 75 per cent. was required to pass. Two candidates were examined, both of whom passed. Four candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College		(1923)	89.3
Baylor University		(1922)	82.1

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Bennett College of Eclectic Medicine and Surgery		(1891)	Minnesota
Rush Medical College		(1922)	Illinois
Kansas Medical College		(1904)	Kansas
Hamline University		(1901)	S. Dakota

1. Copies may be obtained by writing to the Council on Medical Education and Hospitals and enclosing ten cents.

Book Notices

LIVESTOCK SANITATION. A Collection of Short Popular Articles Bearing Upon the Subject. By W. H. Dalrymple, M.R.C.V.S., Department of Veterinary Hygiene, Louisiana State University. Leather. Price, $2. Pp. 145, with illustrations. Baton Rouge: The Gladney Press, 1923.

This modest volume, written in clear, terse style, presents a surprisingly large amount of information in a relatively small space. The author has been successful in his choice of subject matter pertinent to the care of live stock, omitting in a level manner, on the one hand, many details that could have been included in each chapter, to keep the contents within the prescribed limits, and including those salient details, on the other hand, which make the volume valuable to the progressive farmer. The first pages on foods, food uses, food values and food equivalents, and the chapters on soil and manure, are particularly illuminating. The chapter on disinfectants is the least satisfactory part of the book, but it should be said that this chapter is the most difficult one to write for the lay reader. The final chapter, Mistreatment of Live Stock, which might well have been designated Common Sense on the Farm, is unique in that it exposes in no uncertain terms many of the farm superstitions relating to animals and animal diseases. The volume asks many more questions than it can possibly answer, and undoubtedly will stimulate a desire for supplementary reading. Hence, a brief list of books and standard magazines devoted to the farm and its problems would have been a valuable addition.

GERIATRICS. A Treatise on the Prevention and Treatment of Diseases of Old Age and the Care of the Aged. By Malford W. Thewlis, M.D. With Introductions by A. Jacobi, M.D., LL.D., and I. L. Nascher, M.D. Second edition. Cloth. Price, $4.50. Pp. 401, with 24 illustrations. St. Louis: C. V. Mosby Company, 1924.

In this edition there have been several additions to the subject matter, including electrotherapy, opotherapy, asthma and influenza. While, in general, diseases of the old do not vary considerably in their manifestations from those in the young, the author brings out the point rightly that the variations, when they occur, are due to the fact that what is normal in the aged is often pathologic in the young. It is necessary to remember that the props are weaker, and hence the resistance of the superstructure is diminished. The book has many points to recommend it, in that the reader is forced to conclude that, though a patient is old, he still has good chances of recovery under the proper regimen. Here, however, is the dividing line between what the book should be and really is: It is written in a rambling, free and easy sort of style, not altogether free from grammatical errors, and poorly arranged as to subject matter. Most of the authorities referred to are of a decade or decades ago. The methods of treatment are adequate, in the main. However, the manufacturers of organ extracts should revel in this book; renal and thyroid extracts for nephritis, myocardial extract for myocardial deficiency, hepatic extracts for liver diseases and diabetes, prostatic extract for prostatic hypertrophy, besides all the better known extracts are recommended. It is even stated that thyroid extract has cured cancer, and surgical removal of malignant disease, even early, is looked at askance. Tic douloureux, says this book, often yields to elixir of iron, quinin and strychnin. Brandy is recommended in doses as large as a quart daily in some cases of pneumonia. Diathermy and autocondensation are recommended for cardiovascular and renal diseases, in addition to neuritis and rheumatism. What might have been a valuable treatise has been made useless by this type of therapeutic material.

RÖNTGENTHERAPIE. Oberflächen- und Tiefenbestrahlung. Von Dr. H. E. Schmidt. Sechste auflage herausgegeben von Dr. A. Hessmann, Dirigierendem Arzt der Röntgenabteilung des Krankenhauses am Urban-Berlin. Paper. Price, $1.95. Pp. 299, with 103 illustrations. Berlin: August Hirschwald, 1923.

This is a popular treatise on the use of roentgen rays for superficial and deep therapy. The reader is introduced, in a concise chapter, to the modern theory of electricity. The essential differences between the gas tubes, the vacuum tubes, the Coolidge tubes and Lilienfeld tubes are discussed and analyzed in their bearings on the demands of therapeutic application. A short chapter dealing with the history of roentgen-ray therapy leads up to the discussion of the dangers of the method. An interesting item is the essay on the hygiene of the roentgen-ray room. The following chapters deal with the general principles on which the superficial and deep roentgen-ray therapy is based, with an appendix dealing with the forensic importance of damages inflicted on the patients by roentgen-ray therapy. The closing chapters are devoted to roentgen-ray therapy in gastric and duodenal ulcers, and the possibilities in dental surgery.

AN INTRODUCTION TO NEUROLOGY. By C. Judson Herrick, Professor of Neurology in the University of Chicago. Third edition. Cloth. Price, $2.50 net. Pp. 395, with 139 illustrations. Philadelphia: W. B. Saunders Company, 1922.

The third edition of this admirable little book has been brought thoroughly up to date by the inclusion of essential features that have been established by recent research and the addition of reading references to the most recent works. The author has rigidly adhered to the purpose of writing an introduction rather than an exhaustive treatise, and has steered successfully away from the danger of mere enumeration. The subdivisions are essentially physiologic and therefore of the greatest practical value to the clinician. The subject matter is rendered easily accessible by an excellent index, in which is included a glossary of many technical terms. The care that has been exercised in the nomenclature applied to different parts of the nervous system is particularly valuable and will do much to avoid some of the unnecessary complexities of nervous anatomy for the student. The book can be most heartily recommended for students and practitioners, and contains much careful consideration of controversial points that will be found extremely useful by the teacher of neurology.

DISEASE IN CAPTIVE WILD MAMMALS AND BIRDS: INCIDENCE, DESCRIPTION, COMPARISON. By Herbert Fox, M.D., Pathologist to the Zoological Society of Philadelphia. With a Foreword by Charles B. Penrose, M.D., President of the Zoological Society of Philadelphia. Cloth. Price, $12. Pp. 665, with 87 illustrations. Philadelphia: J. B. Lippincott Company, 1923.

The lives of wild animals are an unfailing source of interest to all; their diseases and deaths offer particular interest to physicians. Probably in nature, natural death is uncommon, for the weakening of disease soon leads to violent death from attack by enemies or rivals. Nevertheless, even in nature, disease occurs, and probably the extinction of species has often resulted from epidemic disease; for example, this seems the most plausible explanation of the sudden disappearance of the passenger pigeon in this country. The studies of paleopathology published by Moodie bear witness to the antiquity of disease among even the wild animals of old time. The present volume represents the first and only existing systematic study of the course and character of disease in wild animals, and constitutes an important contribution to medical science and, we may add, to American scholarship. It is based on the studies of the collections maintained by the Philadelphia Zoological Society, carried out for the last twenty years by Dr. Herbert Fox and his colleagues, who have not only performed complete postmortem examinations on every bird and animal dying in the collection, but also have conducted numerous investigations on the living animals, including studies on diet, metabolism, bacteriology and parasitology. This wealth of material is here analyzed, and presents an enormous collection of data of value alike to the keeper of animals and to the investigator of disease. The author, being a physician and a pathologist, has ever in mind the importance of the evidence obtained from his animal subjects on the problems of human disease, which fact adds greatly to the value and interest of the work for medical readers. For example, he points out that "Man is said to be as old as his arteries, and his span of life nowadays is in the neighborhood of half a century. Parrots exhibit lesions of the vascular system comparable to the arteriocapillary fibrosis of human beings, and their expected longevity is about the same or a little greater. From a study of our cases of this lesion in parrots it can be said to appear quite early in life and not to lead to organic disease as it

is alleged to do in man." Such observations as this and many others are bound to set one to thinking as to the justification of many of our hypotheses as to human disease. For example, arteriosclerosis is common to many zoological orders, but its distribution does not show any clear relation to the habits or food of the orders in which it does or does not appear.

In the six thousand necropsies on which this work is based, there have appeared, it would seem, most of the diseases known to man; at least, we find not only the common disorders, such as tuberculosis, pneumonia, nephritis and endocarditis, but also diabetes, cerebral glioma, chorioepithelioma of the uterus, multiple myeloma, Paget's osteitis deformans, osteomalacia, exophthalmic goiter, leontiasis ossium, leukemia and molluscum contagiosum. It is interesting to note that neoplasms have been observed in no less than 2.58 per cent. of the wild mammals coming to necropsy, despite the fact that a large proportion of the deaths have occurred before the animals have reached the age at which cancer is most frequent.

Such a collection of data will serve as a source book of the first importance to all investigators in medical science, for the comparative pathology of disease must always be considered for the light it may throw on conditions observed in another species. This book furnishes not only the best available source for this information, but also much valuable normal material in the way of blood counts and organ weights in relation to body weights in different species. Although it is a mine of information, the material is so well arranged, and discussed with so good an appreciation of relations and values, that its worth far exceeds that of a mere source book. There is included much first hand information concerning the lives and habits of the animals, both when well and when ill, told in so agreeable a style that the medical reader, at least, will find it quite as interesting a narrative as many of the popular writings of the "faunal naturalists."

NOUVEAU TRAITÉ DE MÉDECINE. Publié sous la direction de MM. G. H. Roger, Fernand Widal, P. J. Teissier, Secrétaire de la rédaction. M. Garnier. Fascicule XIII: Appareil digestif (Bouche, Pharynx, Œsophage, Estomac). Boards. Price, 50 francs. Pp. 810, with 123 illustrations. Paris: Masson et Cie, 1923.

This volume of the French system of medicine edited by Roger, Widal and Garnier has all the characteristics of the previous volumes. It gives a complete discussion of the subject from the standpoint of underlying pathology, and the etiology, symptoms and signs; in most cases many laboratory details are included. It emphasizes the French point of view —detailed clinical description and deduction; and this, while not always convincing, is usually interesting. As an illustration of the somewhat exquisite detail of the volume, one notes that seventy-two pages are devoted to description of the pharyngeal anginas. Diseases of the mouth and esophagus are thoroughly discussed; gastric ulcer and carcinoma naturally occupy much space and attention. But one feels as if one were cut off in the middle of a serial story, not having duodenal ulcer together with the discussion of gastric ulcer. The descriptions of various laboratory procedures are clear, and the illustrations are well done. The lack of "foreign" references has been previously criticized; but this fact does not detract from the interest and value of this volume as the latest French exposition of the subject.

HUMAN PROTOZOOLOGY. By Robert W. Hegner, Ph.D., Professor of Protozoology, and William H. Taliaferro, Ph.D., Associate Professor of Protozoology in the School of Hygiene and Public Health of The Johns Hopkins University. Cloth. Price, $4.50. Pp. 597, with 197 illustrations. New York: The Macmillan Company, 1924.

This is intended as a textbook for beginners in the study of protozoology, and is based on the course given by the authors in Johns Hopkins University. It is attempted to explain the general biology of protozoa and to give typical life histories of representative species of the groups studied, with more detailed accounts of the species living in man. It is an authoritative, well written, thorough textbook, well illustrated, and it will be of use not only to students but also to public health officers and physicians. The bibliography, the index of authors and the careful index of subjects increase the usefulness of the book.

Miscellany

THE STATE BOARD QUESTION

W. E. B., writing editorially in the *Atlantic Medical Journal* for April, is disgusted with the peculiar questions asked in state board examinations. In the Delaware examination for 1922 appeared the question, "What is piperazine, and what are its uses?" At that time, he commented:

"Whatever it is, our knowing does not stamp us as brilliant medicos; and our not knowing does not mean that we are unfit to practice medicine. And as these examinations are held to determine whether applicants are fit to practice medicine, such trick or catch questions have no place on the questionnaire—they are neither fair, nor comprehensvie, nor practical. As a matter of fact, in the words of the street urchin, they are nothing but 'durn tommyrot.' As to this particular enigma 'piperazine,' if the question was put in all seriousness, we can only say that the examiner is out of tune with the times. We would much prefer to believe that the question was put somewhat humorously, just to see how the young bloods would bull through, yet even here we must admit a state board examination is a mighty poor place in which to play jokes. We devoutly hope that 'piperazine' and all that it stands for will never appear again in our midst."

In the December, 1923, examination appears the question, "What are the ingredients of roast-beef hash, and state as to its nutritive and keeping values?" To this, W. E. B. proposes the following answer:

"The ingredients of roast-beef hash are weird and wonderful. Poets have wasted reams of perfectly good paper describing said admixture and its luscious flavor; historians have written eloquently of the descent through the ages of this hoary edible; economists have noted at all times the financial independence of those who indulge quite freely; and scientists have declared over and over again that it compares quite favorably with pea soup in consistency, which is a virtue. It is called beef because it generally consists of left-over potatoes and water, with a dash of milk, and a sprinkle of salt. Its nutritive value varies as much as the price of a German mark; in fact, there are hash foundries on Delaware Avenue where the nutritive value is almost as high as the original potato; while on East Fourth Street can be found similar establishments where the nutritive value has about reached the vanishing point. Much might be said as to its keeping values; in fact, it has been known to keep from Tuesday dinner to Sunday breakfast, which is going some. In keeping values it is probably unequaled by any other dish."

THE HEALTH CENTER

The health center movement, says Dr. Charles F. Wilinsky, director of the Blossom Street Health Unit in Boston, was conceived about twelve years ago by Dr. W. C. White of Pittsburgh. A similar plan was soon adopted in Milwaukee, where emphasis was laid on child welfare in a definite area. A little later, tuberculosis nurses in Cincinnati took up a definite area, and the New York Milk Committee opened a health center for little children in the Syrian district of that city. In September, 1914, the health commissioner of New York created a health center on the lower east side, which was soon followed by another in Queens. From these two, there developed a chain of twelve municipal health centers in New York City. Buffalo opened five health centers in 1915, Cleveland and Philadelphia developed additional centers, and the Blossom Street center in Boston was created. By 1917 there were a dozen health centers in large cities and one notable exception in a small town of about 12,000 people, Norwood, Mass. In 1919, the Red Cross took up the development of health centers on a nation-wide scale, and 385 were created. It is estimated that there are about 1,000 health centers in the United States today.

Alameda County, Calif., Wilinsky says, is the most striking example of the type of health center that is a county demonstration. It has fifty-two health and social welfare agencies

housed together. Duchess County, New York, is another health center of this type. In small cities, health centers are of the centralized type, but in large cities they are decentralized, with a chain of health centers in various sections of the city which are responsible to a central office. Philadelphia with ten, Cleveland with seven and St. Louis with ten are examples of the decentralized type in large cities. There are thirty health centers scattered throughout the smaller cities of New York State; New York City has sixty-four municipal baby welfare stations, which concentrate their work on infant and child hygiene.

The fundamental principle in the creation of a modern health center is the correlation of all the health and social agencies, whether public or private, under one roof, with the beneficient results derived from the contact of workers. It is essential that an earnest effort be made to prove to people in the district that the aim of the center is to help keep them well and to do everything possible to prevent disease. The cooperation of the physician in the district, who should be freely consulted as to plans of the health center, and who should take part if possible in the preventive program, cannot be emphasized too strongly.

The Blossom Street Health Center, maintained by the city of Boston, is housed with and actively cooperates with the health department of Boston, the Consumptives' Hospital Department, the Instructive District Nursing Association, the Milk and Baby Hygiene Association, the visiting physician of the Boston Dispensary, and the Hebrew Federated Charities.

This unit, organized in 1915, suspended activities when the United States entered the World War, and turned over its building to the draft board and other agencies. Since its reopening in 1921, its services to the community have "tremendously" increased. Dr. Wilinsky draws attention to the splendid cooperation in this work of the Boston Sanatorium, the Forsyth Dental Infirmary, the state department of health, the Boston Dispensary, and various charity organizations and health agencies and settlement houses in the district, all of which have played an important part in the development of the Blossom Street unit. He says that the request for health information in this community in 1923 increased more than 460 per cent. over that of 1921, and that this is outstanding evidence of the desire in a health center area for health instruction.

EFFECTS OF HIGH TEMPERATURE AND HUMIDITY

Man, in a state of rest and in still air, cannot endure indefinitely a temperature higher than 90 F. with 100 per cent. relative humidity, according to the Department of the Interior. Investigators at the Pittsburgh experiment station of the Bureau of Mines, cooperating with the American Society of Heating and Ventilating Engineers, noted in the course of experiments that stout men subjected to uncomfortably hot temperature lost more weight than thin men, but as a rule could endure high temperatures longer, and complained less of exhaustion. Loss of weight in these men gradually increased with the increase in atmospheric temperature. When they drank ice water they immediately gained weight, and usually regained the entire weight lost within twenty-four hours. Those who drank ice water freely after exposure to high temperatures felt no ill effects, tending to disprove the assumption that such action develops severe cramps.

The exhaustion and weakness that followed subjection to a very high temperature and humidity for a short period was not so severe as subjection to a moderately high temperature and humidity for a longer period. These men became very uncomfortable when the pulse rate exceeded 135 a minute, and complained of unbearable and distressing symptoms when the pulse exceeded 160 a minute. The highest pulse rate recorded was 184 a minute. The respiratory rate was not markedly affected.

Physiologic studies have been made by the Bureau of Mines in some mines to learn the effects of various temperatures and humidities, but it is difficult to carry out studies on many controlled temperatures. These experiments were conducted in a laboratory in two fully equipped chambers, insulated by cork board, designed to maintain air conditions at a desired temperature and humidity. The temperature, humidity and air motion of each room was controlled independently of one another. The air conditions were controlled by apparatus outside the chambers, and entirely separated from them. Instruments for observing the temperature of the subjects, and for recording the pulse rate and respiration, and apparatus for basal metabolism work were in an adjoining room.

An attempt was made to determine the cause of the conjunctivitis of which workers so frequently complain. When the eyes were normal, a small quantity of sweat was dropped in the eyes. The conjunctiva almost immediately became inflamed, and the eyes felt sore. Sweat collected from the face seemed less irritable to the eye than that collected from the chest or arms. Sweat bands were then applied to the forehead during the experiments, preventing sweat from falling into the eyes, and also preventing the conjunctivitis. This indicates that sweat is the chief factor in producing the conjunctivitis that accompanies exposure to heat.

Medicolegal

"Such Immediate Surgical Relief as Is Imperative"

(United States Casualty Co. v. Johnston Drilling Co. (Ark.), 255 S. W. R. 890)

The Supreme Court of Arkansas says that the plaintiff brought this action to recover a balance claimed to be due on the premium for a policy of employer's liability insurance issued by the plaintiff to the defendant. The defendant answered with a counterclaim for a sum expended by it for medicine and medical treatment furnished to one of its employees after he had sustained an injury whereby he lost an eye. What was designated "condition C" of the policy provided, among other things, that "the assured shall not voluntarily assume any liability, . . . except that the assured may provide at the time of the accident (and at the cost of the company) such immediate surgical relief as is imperative"; but an indorsement on the policy stated that, "in consideration of the reduced premium charged for this policy, it is hereby understood and agreed that this policy shall not cover the cost of immediate surgical relief referred to in condition C, anything in the policy to the contrary notwithstanding." The issue in its final analysis was whether the amount claimed by the defendant as a set-off against the plaintiff's claim, was incurred for "immediate surgical relief," and also whether the amount claimed by the defendant was a liability which it voluntarily assumed.

The words "such immediate surgical relief as is imperative" as used in the contract of insurance obviously contemplate emergency or "first-hand" relief; in other words, such relief as must be given instantly or immediately following the accident to prevent impending death or to assuage or prevent suffering. These words have no reference to such surgical and medical treatment, hospital charges and compensation for nurses and such other expenses as are incident to, and necessarily incurred in, the usual and ordinary treatment of the victim of the accident some time after the accident occurred and which are continued in order to restore him, if possible, to his normal condition, and by so doing to lessen the damages for which the person causing the injury would be liable.

The contention of the plaintiff, as the court understands it, was not that the claim of the defendant was for such immediate surgical relief as was imperative, and therefore that the plaintiff was not liable under the rider provision of the policy; but its contention was that it was not liable because of such provision for such surgical and medical attention, hospital and nurse expenses as were incident to and necessarily incurred in the ordinary course of the treatment of the employee's injury. This contention of the plaintiff could not be sustained, because for such expenses the

defendant was liable to the injured employee as damages which were the direct and proximate result of the injury caused by the defendant. Such expenses did not represent a liability voluntarily assumed by the defendant, but they were damages under the law which the defendant was bound to pay. Such the court believes to be the plain and unambiguous meaning of the word "voluntarily" in condition C of the contract, and it occurs to the court also that the words "immediate surgical relief as is imperative" cannot be construed to include expenses of the character set up in the defendant's counterclaim, and therefore the elimination of such words by the rider clause of the policy did not relieve the plaintiff of liability for such expenses. Even if there were a reasonable doubt about such interpretation being correct, still it would be the court's duty to resolve such doubt in favor of the defendant as against the plaintiff, because the latter wrote the contract. It followed that the plaintiff, under its contract of insurance with the defendant, was liable to the latter for the amount in controversy, and a judgment allowing the defendant $739.85 as a set-off is affirmed.

Employment of Physician for Employee of Corporation

(Willis v. MacDougall & Southwick (Wash.), 220 Pac. R. 759)

The Supreme Court of Washington says that the plaintiff sued the defendant, a corporation, for the reasonable value of certain surgical operations performed by him on one of the defendant's employees. The plaintiff's case was to the effect that one Carpenter, president and general manager of the defendant, gave him a direct, original and independent promise to pay for his services. The trial judge sustained a challenge to the sufficiency of the evidence, took the case from the jury, and entered a judgment of dismissal, which judgment is here reversed. The defendant contended that on the facts the plaintiff failed to sustain the burden of proof; but that was a question for the jury to determine. Then the defendant contended that there was no evidence to show authority on the part of Carpenter; that he expressly denied it; and that no such authority could be implied; but that was answered contrary to the contention of the defendant very early in the history of this court. It was true that there was no contradiction of the testimony of Carpenter that he had no such authority to employ a physician, except the circumstances that, while he said he had no such authority, the bills of other physicians and the hospital were paid as direct obligations of the company about three years before trial, and that, as Carpenter said, his acts had not been questioned. Hence the question as to whether or not his bare denials were sufficient to overcome the presumption under the decisions of this court remained a question of fact for the jury.

It is true that the general rule is that, when a person requests the performance of a service, and the request is complied with and the service performed, the law raises an implied promise to pay the reasonable value of the services, and that the general rule is, further, that this implication does not obtain when one person requests a physician to perform services for a patient, unless the relation of the person making the request to the patient is such as raises a legal obligation on his part to call in a physician and pay for the services. This is but a statement of the common sense rule which should obtain, for it would be an unjust and senseless rule to require a person, obtaining the services of a physician on a sudden emergency of injury or sickness of another, to be impliedly liable for the services. It is also a common sense rule to imply liability on the part of a person having such relation to a patient as raises a legal obligation on his part to call in a physician and pay for the services. But this rule had nothing to do with the question of whether this corporation as such, through its general manager and executive officer, could bind itself expressly and independently to pay for the services of a physician or a hospital or any service whatever for its employee. The direct promise, if made by the general manager, was not within the statute of frauds. The question, therefore, as to whether it was the obligation of the company, was a question of authority and power on the part of Carpenter, the general manager, to bind the company. That question was not concluded by the denials of Carpenter as to his authority. His authority would not be legally determined either by his own assertions, or denials, thereof.

This court realizes that there are many cases holding that the manager of a business corporation has no implied authority to furnish medical aid and assistance to a servant who has been injured outside the line of his duties, or to a servant not injured and no emergency existing for the employment of a physician's services. The court is convinced, however, that, under the presumed authority of a general manager under the decisions of this court, it was here a question to be decided by a jury. Moreover, this is in line with the undoubted modern tendency for all kinds of corporations, including mercantile, to engage in many lines of activity for the betterment and added contentment of employees, in addition to their strict business activities, all of which are usually managed by the ordinary business manager.

It was contended that the judgment for the defendant was right because three separate treatments and attendances on the part of the plaintiff were shown, and no attempt was made to segregate. He simply charged $750 for the whole; and the defendant insisted that he saw Carpenter only once. The court's answer is that the plaintiff's testimony simply covered the whole treatment, service and engagement, if his testimony was to be believed. There was therefore no necessity to segregate for each attendance and treatment. It was error to take the case from the jury.

Limited Effect of Order of Board of Insanity

(Kirk et al. v. McClendon (Okla.), 220 Pac. R. 949)

The Supreme Court of Oklahoma holds that in a case in which a board of insanity found a man insane and committed him to a hospital for the insane from which, three months later, he was discharged as recovered, he was, under the statutes of that state, restored to all his political, civil and other rights. The proceeding for the restoration of an insane person to capacity, under Section 1452, Compiled Statutes of 1921, is not applicable to the case of one confined in an asylum for the insane without having been put under guardianship. There is a distinction between the judicial finding by the county court that a person is insane, for the purpose of appointing a guardian for him, to take charge of his property, and the finding by a board of insanity. An order of a board of insanity, adjudging one to be insane, has no bearing on his legal, mental status. The effect of such an order is to admit one to the state hospital for treatment. The members of the board do not act as judicial officers, but as a special board, clothed with a special power only. The fact that the county judge is a member of the board does not affect the matter, as he acts as any other member of the board, and not as a county judge or as a county court.

"Loss of Bodily Function"

(Vukelich v. Industrial Commission of Utah et al. (Utah), 220 Pac. R. 1073)

The Supreme Court of Utah says that, in addition to injuries by the loss of particular physical members, such as an arm, hand, leg, foot or eye, the workmen's compensation act of that state places in the same class "any other disfigurement, or the loss of bodily function not otherwise provided for." These words are not meaningless. The court thinks that they evince a purpose to include such other injuries as are similar to the loss of physical members, in the respect that they are fixed and permanent, and their consequences and degree of disability can be presently ascertained. The injury in this case was described as ankylosis of the tenth, eleventh and twelfth dorsal vertebrae, the three vertebrae having been crushed together, and the formation of bone callus having blended them all as one, thus interfering with the motion of the spine. Physicians testified as to the amount of the resulting disability. The court considers that the evidence was sufficient to support the findings of the industrial commission that the injury was a "loss of bodily function," within the meaning of the statute, and the awarding of compensation on that basis.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, Chicago, June 9-13. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary.

American Association of Genito-Urinary Surgeons, Stockbridge, Mass., May 26-28. Dr. Henry G. Bugbee, 40 East 41st St., New York, Sec'y.

American Association of Industrial Physicians and Surgeons, Chicago, June 9-10. Dr. A. G. Cranch, National Carbon Co., Cleveland, Sec'y.

American Dermatological Association, Minneapolis, Minn., June 5-7. Dr. Udo J. Wile, 211 East Huron Street, Ann Arbor, Mich., Secretary.

American Laryngological Association, Swampscott, Mass., June 2-4. Dr. George M. Coates, 1811 Spruce Street, Philadelphia, Secretary.

American Laryngological, Rhinological and Otological Society, St. Louis, May 29-31. Dr. W. H. Haskin, 40 East 41st Street, New York, Sec'y.

American Neurological Association, Philadelphia, June 5-7. Dr. Frederick Tilney, 870 Madison Avenue, New York, Secretary.

American Ophthalmological Society, Hot Springs, Virginia, May 26-28. Dr. T. B. Holloway, 1819 Chestnut Street, Philadelphia, Secretary.

American Otological Society, Swampscott, Mass., June 3-5. Dr. Thomas J. Harris, 104 E. 40th Street, New York, Secretary.

American Pediatric Society, Pittsfield, Mass., June 5-7. Dr. H. C. Carpenter, 1805 Spruce Street, Philadelphia, Secretary.

American Proctologic Society, New York, June 23-25. Dr. Joseph F. Montague, 540 Park Avenue, New York, Secretary.

American Psychiatric Association, Atlantic City, June 3-6. Dr. C. Floyd Haviland, Drawer 18, Capitol Station, Albany, N. Y., Secretary.

American Radium Society, Chicago, June 9-10. Dr. Edwin C. Ernst, Humboldt Bldg., St. Louis, Secretary.

American Society of Clinical Pathologists, Rochester, Minn., June 5-7. Dr. Ward Burdick, 652 Metropolitan Building, Denver, Secretary.

American Society of Tropical Medicine, Chicago, June 9-10. Dr. B. H. Ranson, Bureau of Animal Industry, Washington, D. C., Secretary.

American Urological Association, Atlantic City, June 3-5. Dr. Homer G. Hamer, 723 Hume-Mansur Building, Indianapolis, Secretary.

Associated Anesthetists of the United States and Canada, Chicago, June 9-10. Dr. F. H. McMechan, Avon Lake, Ohio, Secretary.

Connecticut State Medical Society, Hartford, May 28-29. Dr. C. W. Comfort, Jr., 27 Elm Street, New Haven, Secretary.

Maine Medical Association, Portland, June 25-27. Dr. B. L. Bryant, 265 Hammond Street, Bangor, Secretary.

Massachusetts Medical Society, Boston, June 6-7. Dr. W. L. Burrage, 182 Walnut St., Brookline, Secretary.

Medical Library Association, Chicago, June 9-10. Dr. John Ruhräh, 11 East Chase St., Baltimore, Secretary.

Medical Women's National Association, Chicago, June 9-10. Dr. J. W. Fisher, Middlesex Hospital, Middletown, Conn., Secretary.

New Hampshire Medical Society, Manchester, June 24-25. Dr. D. E. Sullivan, 7 N. State Street, Concord, Secretary.

New Jersey, Medical Society of, Atlantic City, June 5-7. Dr. J. B. Morrison, 97 Halsey Street, Newark, Secretary.

New Mexico Medical Society, Santa Fe, May 27-29. Dr. Charles M. Yater, Roswell, Secretary.

Pacific Northwest Medical Association, Vancouver, B. C., June 26-28. Dr. F. Epplen, 422 Paulsen Building, Spokane, Wash., Secretary.

Radiological Society of North America, Chicago, June 6-7. Dr. M. J. Sandborn, Appleton, Wis., Secretary.

Rhode Island Medical Society, Providence, June 5. Dr. I. W. Leech, 369 Broad Street, Providence, Secretary.

Utah State Medical Association, Logan, June 19-21. Dr. William L. Rich, Boston Building, Salt Lake City, Secretary.

Wyoming State Medical Society, Cody, June 17-19. Dr. Earl Whedon, Sheridan, Secretary.

ASSOCIATION OF AMERICAN PHYSICIANS

Thirty-Ninth Annual Meeting, held in Atlantic City, N. J., May 6 and 7, 1924

DR. CHARLES F. MARTIN, Montreal, presiding

Medical Education

DR. CHARLES F. MARTIN, Montreal: In America the tendency in medical education is to become too specialized, and the British schools allow too great a latitude. It is best to have a combination of the two methods. The recent appointment of a medical commission by the Association of American Medical Colleges to inquire into the whole scheme of education shows how much we have still to learn in this field. Medical schools and hospitals have gone on apace, but it is impossible for the privately endowed institution to compete with those who have been endowed for generations, and they are unable to keep the best type of teachers. Insurance companies and large commercial institutions also make inroads on our scientific staffs, and thus we lose some valuable personnel. We have two aims before us in medical colleges: One is to create good physicians, and the other is to advance scientific knowledge from the standpoint of the university. We have to guide the student until he is able to become an efficient practitioner, but we must also give him a scientific method of thinking. It is hard to give all this to the average student without making him overfed for his size, but to the higher typed minority we can, perhaps, give such a training. We must, however, remember not to spoil a good clinician by a too slavish adherence to laboratory technic. The center of knowledge is constantly shifting and its scope widening. A study of medicine now includes knowledge of biochemistry, of physical forces, of electrotherapeutics. The solution must be found in correlating all these aims with clinical practice.

SYMPOSIUM ON ENDOCARDITIS

Bacterial Endocarditis

DR. W. S. THAYER, Baltimore: Of 206 cases of bacterial endocarditis, 145 came to necropsy; 115 were streptococcal in origin; twenty-eight, pneumococcal; twenty-six were caused by *Staphylococcus aureus;* twenty-three by the gonococcus; eight by Pfeiffer's bacillus, and four by *Staphylococcus albus;* one was due to *B. pyocyaneus* and one to *B. anthracis.* For the purpose of comparison, twenty-four fatal cases of uncomplicated rheumatic heart disease in young persons were studied. The leukocytosis was much higher in these than in the streptococcal infections; they were cases of true pancarditis. The valvular lesions were not recognizable during life. The mitral valve was most often affected; next, the aortic; next, the tricuspid—in about 40 per cent. There was relative frequency of mural endocarditis in the left auricle, presenting wrinkled, puckered patches that looked like virulent endocarditis, but it was really fibrous exudate. On section, the auricular wall was packed with Aschoff bodies. Besides these cases we had five in which scars were found at necropsy. Pneumonic endocarditis is an acute malignant process with extensive vegetations and ulcerations. It is a disease of middle life, and follows acute pneumonia. It is characterized by high fever, increased leukocytosis and valvular distortion. The aortic valve is most frequently affected, the mitral next. Death occurs in a few weeks. Some cases ran a subacute course of several months' duration. *Staphylococcus aureus* endocarditis is an acute malignant process with acute septic pyemia. Fever was high; leukocytosis was very high. Sometimes the disease pursued a subacute course, but cultures were obtainable several months before death. Gonococcal endocarditis was most common in the third decade of life. The relation to preexisting gonorrhea was not always apparent. There was early anemia, and leukocytosis was very high. The aortic valves were most frequently affected, but in twenty-three cases studied the pulmonary valves were more affected than in other forms of endocarditis. The course was less acute than that of *Staphylococcus aureus* and of pneumococcus endocarditis. Streptococcal endocarditis varies with the character of the organism. The mitral valves are most frequently affected. Fever is high, but leukocytosis is not so high as in other forms. Anemia is progressive. Embolic phenomena, nephritis and clubbing of the fingers are frequently found. Hemiplegia occurs in one third of the cases. Peridental infections are more commonly seen than in other forms of endocarditis.

Evidence that Digitalis Influences Contraction of the Heart of Man

DRS. A. E. COHN and H. E. STEWART, New York: Our studies have been along the line of German workers (Goethe and Rosenthal), taking roentgenograms of the heart on moving films. We have shown that while in the normal heart the rate is not changed, the excursion is increased. In auricular fibrillation, the rate is lowered but the excursion is increased. There are two factors involved here; with the slowing of the rate, one would expect contraction to change. It is also a question of pressure. Also, when atropin is given the rate is changed, but the excursion is not changed. We feel, therefore, that our studies have proved that digitalis does influence the heart even when the heart is normal.

Further Report on Patients Who Recovered from Subacute Bacterial Endocarditis

DRS. DUNCAN GRAHAM, J. A. OILLE and H. K. DETWEILER, Toronto: In 1915 we presented before this association a report of twenty-three cases of *Streptococcus viridans* bacteremia, in all of which the patients recovered. Of these

patients, five are not traceable; twenty are living; four are in good health; fourteen are fairly well and able to work; one, working as a music teacher, is gradually losing strength; one has been a chronic invalid for twelve years. In 1915, six of the twenty-three had no obvious endocardial involvement, but five developed murmurs under observation. Later, twenty-two had a mitral systolic murmur unaffected by respiration; nine had an aortic systolic murmur, and three with previous rheumatic history showed mitral stenosis; one had no murmur; three had slight enlargement of the heart. Most of them had mild fever; all showed positive *Streptococcus viridans* blood culture, some of three or four months' duration. Recently, sixteen of these patients have been reexamined to note persistence or alteration of murmurs. In nine of the sixteen, mitral systolic murmur has persisted; in four it has disappeared and been replaced by a systolic aortic murmur, constant in respiration and increased by exertion. In one case of mitral and aortic murmurs, originally, the mitral murmur has now disappeared. In four patients with aortic systolic murmur, the murmur has persisted, and in two patients with both aortic and mitral systolic murmur, the aortic murmur has ceased. In the three mitral stenosis cases, signs are now more marked. No new mitral stenoses have developed. One patient never had a murmur; one mitral systolic murmur, present in 1915, has since disappeared. Two patients have developed slight enlargement of the heart. All but one of these patients showed signs and symptoms characteristic of early stages of malign form of subacute bacterial endocarditis, such as fatigue, weakness, moderate anemia, joint and muscle pains, gastro-intestinal disturbances, restlessness, irritability and mild fever. While there were no chills, progressive anemia, emaciation or embolic phenomena, there were positive blood cultures in all cases of *S. viridans*. Similar cases have been seen from time to time since 1915, but the occurrence of twenty-three in one locality in a short period of time suggests possibility of a small epidemic. We believe that this form of endocarditis occurs more commonly than is supposed, and that young children are most frequently affected.

The Electrocardiogram of Ventricular Enlargement

DR. PAUL D. WHITE, Boston: During the last ten years, about 4,000 persons have been electrocardiographed and the results analyzed; 288 showed right axis deviation, and of these 53 per cent. had mitral stenosis; 7 per cent. had pulmonary stenosis; 2 per cent. had congenital dextrocardia; 398 had abnormal left side deviation, and of these 30 per cent. had hypertension and 20 per cent., aortic regurgitation. We feel that there is a definite relationship between abnormal right deviation and mitral and pulmonary stenosis. With left deviation there is relationship to aortic regurgitation and hypertension.

Value of the Electrocardiogram in the Diagnosis and Treatment of Heart Disease: Significance of Abnormal Ventricular Complexes

DR. F. N. WILSON, Ann Arbor, Mich.: In the recognition of cardiac irregularities, perhaps 90 per cent. can be recognized without the graphic method if the physician has enough experience. Observations can be better checked up by the electrocardiograph. On the other hand, certain irregularities cannot be detected without cardiographic methods, such as auricular fibrillation and extrasystoles. In the recognition of valvular lesions, the electrocardiogram is rarely useful. It is of more value in the interpretation of murmurs. The electrocardiogram will tell whether the heart is damaged. The electrocardiogram is of no direct value in the recognition of cardiac weakness or cardiac failure. Its most important use is in the recognition of myocardial changes, on account of the fact that no clinical method gives direct evidence of the state of the heart muscle. In certain abnormalities, the main change is in the heart muscle. Such changes are indicated by (1) increase in the P-R interval; (2) bundle branch block, and (3) preponderance. Electrocardiographic abnormalities occur in many clinical conditions; therefore, abnormalities do not mean anything in themselves and are important only as indicating that the heart muscle has been exposed to injury.

Value of the Electrocardiogram in the Diagnosis and Prognosis of Coronary Artery Disease

DRS. B. S. OPPENHEIMER and MARCUS A. ROTHSCHILD, New York: There are many cases of sudden cardiac death in the senile and presenile period due to coronary artery occlusion with infarct. It is difficult to make a clinical diagnosis of myocardial involvement. We have added one electrocardiographic sign in this group of cases. The changes noted may be (1) intraventricular block; (2) bundle branch block; (3) changes approaching bundle block, and (4) arborization block. We have made histologic sections of ten hearts showing intraventricular block, and the results show that we must divide arborization block from bundle branch block. We have now added additional criteria: (1) change in the R-T interval, and (2) bundle branch block. After coronary artery occlusion, if there is improvement, the change in the R-T interval returns to normal. Examination was made of 100 cardiac cases coming to necropsy. In forty-seven there were abnormal electrocardiograms. Three showed coronary artery occlusion. It appears that we cannot get coronary artery occlusion without electrocardiographic evidence. Of the forty-seven cases showing abnormal electrocardiograms, five showed bundle branch block, six showed changes approaching bundle branch block; seventeen showed arborization block; nineteen, R-T interval change. These changes, however, are not specific for coronary artery disease. As a working hypothesis, the Q-R-S (intraventricular block) changes are evidence of damage of the conduction system, occurring late after the insult, but usually permanent. The R-T changes denote damage to the myocardium, occurring quickly, but usually of a temporary character. In regard to prognosis, myocardial change with an abnormal electrocardiogram give a worse prognosis. Where there is no electrocardiographic change, the duration of life is found to be longer.

Arrhythmia of Auricular Fibrillation

DR. E. S. KILGORE, San Francisco: This paper is a study of the irregularity of the ventricle in such cases. It was found that the respiratory cycles have an influence on the average cycle of the ventricle. A strong pressure tends to lengthening of the ventricular cycles at one phase of respiration in some cases. This may show that we have two types of cycles in the ventricles considered from a time, or chrononomic standpoint. Very pronounced effects, other than pulse rate, may take place in the ventricle. Atropin standardizes the cycle lengths independent of accelerating effects. From the chrononomic point of view the cycles may differ quantitatively as well as qualitatively, perhaps by respiratory effect; but most of the variations in this study are not explained by our knowledge at the present time.

DISCUSSION

DR. JOSEPH L. MILLER, Chicago: During the last three years I have encountered eight patients with acute endocarditis. Blood cultures were positive for *Streptococcus viridans* in all these cases. Four of the patients died after from four to seven months' illness. Formerly, when we relied only on the clinical manifestations and from this picture made a diagnosis of septic endocarditis, we found that all the patients died. Now we take blood cultures, and of the patients who show positive cultures, many recover. Looking back, I think that in the four fatal cases I would have made a diagnosis of septic endocarditis. The four who recovered should have been classified as rheumatic endocarditis because in them the mitral lesions appeared before the other symptoms developed. In none of these cases were there embolic phenomena; none had petechial rashes, and none had chills, except in one case in which a complicating pericarditis developed.

DR. JOSEPH CAPPS, Chicago: I was interested in the prognosis of these cases, especially those which fell into the *Streptococcus viridans* group. Maybe the explanation offered by Dr. Graham as to the probability of an epidemic in Toronto is adequate but, perhaps, more careful cultural methods detected a group of cases which would have been passed by as not being bacterial endocarditis. Now that we

are accustomed to taking cultures more often we are getting a higher incidence of bacterial endocarditis. In St. Luke's Hospital, Dr. Biggs found fifty-seven positive blood cultures of *Streptococcus viridans*. Thirty-one of these patients are dead. The rest are living and well after two years. We have done some work with sodium cacodylate, and our figures show better results; but in the light of the work of Dr. Graham, which shows in many instances a spontaneous recovery without treatment, we must be very cautious in making statements attributing results to any particular method of treatment.

DR. H. A. HARE, Philadelphia: What percentage of cases develop cerebral processes? What was the proportion of patients who showed infarct or other pathologic change in the kidney? I have noted the extraordinary rarity with which patients suffering from bacterial endocarditis die with symptoms of decompensation. In a considerable number of cases which I have seen, almost every patient has died with evidence of infarct in some part of the body, either a widespread paralysis or a renal or splenic infarct, but not of myocardial degeneration with circulatory feebleness.

DR. HENRY A. CHRISTIAN, Boston: From a clinical point of view, it is curious that there is any doubt about the direct action of digitalis on the heart muscle. Digitalis is also very efficient in some cardiac cases in which there is no arrhythmia and no tachycardia, a group in which it seems difficult to explain the action of digitalis as direct action on the heart muscle. In another group with complete heart block and slow ventricular action, similar beneficial effect is obtained from digitalis. I believe it acts directly on the heart muscle. The rhythm being already slowed, there is no action on the rhythm.

DR. GEORGE BLUMER, New Haven, Conn.: Dr. Thayer said that for obvious reasons the incidence of gonorrheal infection was confined chiefly to the third decade. The reasons are not quite so obvious. I should think infection might occur in several decades. We are indebted to Dr. Graham for giving us the subsequent history of cases reported nine years ago. In a review of bacterial endocarditis I pointed out the difficulty of accepting evidence, accepted at that time as evidence, that patients were suffering from endocarditis. That difficulty still exists. We know how difficult it is to interpret evidence when the patient does not die and when there are no embolic manifestations. That condition exists in rheumatism. We can overcome that difficulty in two ways: first, by postmortem studies; second, by observing and following up the subsequent history of these cases. One curious point noted by Dr. Graham was that, notwithstanding the fact that there were several cases of mitral regurgitation, not one of those cases later developed mitral stenosis.

DR. T. STEWART HART, New York: In cases in which one sees tremendous diuresis after digitalis and no slowing of the heart, and no change in blood pressure, there was no absolute evidence that the digitalis did not act on the kidney or on the heart. I can substantiate the prognostic and diagnostic features mentioned by Dr. Oppenheimer. I selected twenty-five cases showing abnormal curves, and I have followed all but three; of the twenty-two followed, all but three patients are dead. More than half the number died within six months after the electrocardiographic evidence was secured. Many of them would not have been recognized without electrocardiographic help. If we should get into the habit of taking records earlier, diagnoses might be made earlier.

DR. JOSEPH PRATT, Boston: Recently some cases of subacute bacterial endocarditis due to *Streptococcus hemolyticus* have been reported. I should like to ask Dr. Thayer what percentage of his cases were due to *S. viridans* and what proportion to *S. hemolyticus*. I have seen it stated that the gonococcus attacks the tricuspid and the pulmonary valves more than other organisms do. If the pulmonary valves and the tricuspid valves are involved on the right side and not on the left, is that infection due to the gonococcus?

DR. EMANUEL LIBMAN, New York: One of the most interesting subjects brought up by Dr. Thayer is the question of involvement of the endocardum of the left auricle in cases of rheumatic fever. It is important, in studying cases of endocarditis, to note that rheumatic endocarditis and subacute bacterial endocarditis may exist, both in the active stage, in the same heart. Subacute bacterial endocarditis may occur in the active stage, on the basis of a healed rheumatic endocarditis—and a healed subacute bacterial endocarditis may be accompanied by a fresh attack of rheumatic infection. In Dr. Graham's cases I see no way of avoiding the conclusion that there was present a subacute bacterial endocarditis. The fact that embolic manifestations were not present does not exclude that possibility. It is to be noted that anhemolytic streptococci (*Streptococcus viridans*) may acquire hemolytic properties during the progress of a case. When we look carefully at hearts obtained from cases of subacute bacterial endocarditis, we find evidence of the frequency of mild attacks and of recurrences. I have observed at least eight cases of subacute bacterial endocarditis, with positive blood cultures, in which recovery ensued. At least two were mild cases, but not as mild as those reported by Dr. Graham. The other six were of the usual but not most severe type. In none of my cases, nor in those reported today, were the phenomena found that are present in cases that come under observation after having spontaneously become bacteria-free. I refer to such conditions as diffuse glomerular nephritis, embolisms, anemia and splenomegaly. This is curious, and awaits a proper explanation. The studies of Drs. Oppenheimer and Rothschild are of value in the study of all cases of so-called angina pectoris, particularly when the question arises as to whether there is present a thrombosis of a coronary artery or an acute abdominal disease, or whether both are present. During the last year I observed a patient who had evidence of previous myocardial disease and who was suffering from an attack which might have been either a coronary thrombosis or an acute pancreatitis. The electrocardiographic examination showed the changes often caused by a recent coronary thrombosis. The subsequent clinical course confirmed this finding.

DR. LLEWELLYS F. BARKER, Baltimore: It has been mentioned that the absence of systematic blood cultures explains the failure to discover mild cases of *Streptococcus viridans* endocarditis. This may be true in some places, but it is not true of our work in Baltimore. We make blood cultures regularly in all cases of prolonged fever, but we have not seen this type of cases. My results corroborate those of Dr. Thayer. We have not had experience with these mild cases of *Streptococcus viridans* endocarditis. I think, therefore, that there must be other reasons, apart from the taking or not taking of blood cultures, to explain the absence of such cases in our experience.

DR. W. S. THAYER, Baltimore: Embolic phenomena are exceedingly frequent in staphylococcus infection. I have seen them in influenzal and *Streptococcus viridans* infection. As to the causes of death in these cases, rarely was a true myocardial insufficiency the cause, but myocardial insufficiency played a large part in the mortality. There were several cases of cerebral embolism. In regard to Dr. Blumer's question, it is difficult to answer. I have generally considered the third decade as the period of greatest exposure. In regard to the number of cases of infection by *Streptococcus viridans* and *Streptococcus hemolyticus*, there were seventy-two of the former and ten of the latter. The *S. viridans* infections were long lesions. The lesions from *S. hemolyticus* were small, fresh lesions. In regard to recovery from *S. viridans* endocarditis, we have had one such case, but none of the other patients recovered. We have had three cases of unaccountable fever in which *S. viridans* was obtained from the circulation, but not in great numbers, and later it disappeared. Of course, if one thinks of the number of cases of oral sepsis, it is not surprising that one picks up *S. viridans* in the circulation. In regard to Dr. Libman's remarks, anatomically there is abundant proof that fresh infection occurs on old nodules. We have evidence that recoveries take place from gonorrheal endocarditis. I believe that, in many cases, recovery can occur early in the course of subacute endocarditis, but recovery later on, when large vegetative masses have occurred, is not very common. The blood deals with *S. viridans* in the circulation, but it is the lesion

which causes the danger. In this case, large masses of bacteria are shut in and are cut off from the general circulation.

Dr. A. E. Cohn, New York: These observations were based on a study of four cases. Dr. Hare spoke of a dose of 0.9 gm. as being a very large dose. Various workers have taken a diametrically opposed view. Effort has been made to apportion dosage to body weight. A dosage of 0.9 gm. is a common one, and doses of more than twice that amount can be given with less discomfort to the patients now than formerly. Nausea and vomiting do not occur until after the change in the T-wave, so that we feel that a dose of this size is safe and satisfactory and without much discomfort.

Dr. J. A. Oille, Toronto: I think that Dr. Graham's explanation is correct. Whenever signs of petechiae, embolism and anemia occurred, those patients died. What we termed cases of "simple endocarditis" ended in recovery. These cases should be divided into two groups: (1) rheumatic, and (2) *Streptococcus viridans*. These are not all the cases we have seen in Toronto.

Dr. F. N. Wilson, New York: In regard to left ventricular preponderance: The electrocardiographic signs are not always as marked as the changes in the muscle as found at necropsy. In dogs with aortic insufficiency, there may be considerable enlargement of the heart without electrocardiographic signs. In syphilis, however, I have seen these cases change very quickly to arsphenamin. I have seen many dogs die from subacute bacterial endocarditis, with *Streptococcus viridans* infection, which they developed spontaneously.

Dr. M. A. Rothschild, New York: It has been possible by means of the electrocardiograph to diagnose, or to suspect with certain accuracy, fresh injury to the myocardium. We have followed cases with fresh injury to the postmortem, but clinical and electrocardiographic evidence gradually disappears, so that the only point remaining is the inversion of the T-wave in Lead III. Our interpretation in the three cases in abnormal electrocardiograms with myocardial injury was made because the injury had healed completely, leaving a healed area in the heart muscle. This may be the explanation of the fact that in some cases the electrocardiogram does not give definite evidence.

Treatment of Scarlet Fever with Scarlatinal Antistreptococcus Serum

Dr. Francis G. Blake, New York: We have found that the serum blanches the rash and that the serum has prompt curative effect, with recovery within thirty-six hours after serum dosage. Continued use has confirmed clinical impressions. The serum has been effective in twenty complicated cases treated before the fourth day. In septic complicated cases, a single intramuscular injection of from 35 to 90 c.c. brought about cure within twenty-four hours; in one very toxic case, four injections were given. Several points are proved by clinical experience: There is a toxic substance in the blood; this disappears after intramuscular injection; the toxin usually disappears about the tenth day. People whose serum does not blanch scarlatina rash are susceptible. The insusceptible have a blanching power to the serum. The toxic substance disappears on convalescence and is sometimes excreted in the urine. The toxin can be destroyed in vitro by human blanching serum, and also by Dochez horse serum. The toxin disappears from the blood of the susceptible within four hours after serum injection. All toxic manifestations tend to disappear after serum injection, but less quickly in complicated cases. The duration of the rash is two and one-tenth days, as compared with ten days in untreated cases.

Scarlet Fever

Drs. George F. Dick and Gladys H. Dick, Chicago: Review of the literature since 1912 shows two facts: 1. The hemolytic streptococcus is constantly present in scarlet fever. 2. Immunity to hemolytic streptococci can be acquired. This does not prove, however, that the hemolytic streptococci present are the cause of scarlet fever, so we had to produce experimental proof The work, begun in 1916, was interrupted during the war, but was continued in 1919. The results were positive. *Streptococcus hemolyticus* may be divided into two groups according to cultural reactions on mannite. The scarlet fever organism may or may not ferment mannite. This was proved on two volunteers. The susceptible individual contracted scarlet fever. This fulfilled all the requirements of Koch's law. We also found that there was no cross-agglutination between mannite fermenting organisms and nonmannite fermenting organisms. Each had its own agglutination reactions. Both organisms produce the toxin of scarlet fever. The toxin injected into the susceptible produces fever, nausea, vomiting and rash, which disappear in forty-eight hours.

DISCUSSION

Dr. George Kober, Washington, D. C.: It may not be without interest to state that in my tabulations of milk-borne epidemics of 195 outbreaks of typhoid fever, ninety-nine of scarlet fever and thirty-six of diphtheria, in nineteen instances of the scarlet fever epidemic there was no evidence of the disease among the hawkers of the milk. The epidemic at Marylebone, St. Pancras and Hampshire in November and December, 1885, was traced to a particular dairy farm, but no sign of scarlet fever could be discovered at or near the dairy. Some of the cows were suffering from an ulcerative disease of the teats and udders. Other circumstances favored the bovine origin of the disease. On examination, certain micrococci were found in the diseased tissues and organs of the cows, and in the discharge from their teats. They were grown on various culture mediums. Inoculation of calves with this material, whether in culture or direct from the cow, produced a disease having unmistakable affinities with human scarlet fever. The microbe inhabited both the tissues and the organs of human scarlet fever patients and of the cows, and the investigator declared that it be given the name *Micrococcus scarlatinae*. In my report, published in 1895, I stated that while there is no positive proof that there is a disease in the cow which is communicable as scarlet fever in man, when we consider that toxins may and do produce a scarlatinous exanthem in man, often impossible to differentiate clinically from true scarlatina, there is nothing strained in the assumption that in these debatable instances we are dealing with typical instances of a streptococcus and a staphylococcus infection. There is little doubt that scarlet fever is caused by *Streptococcus hemolyticus*. This organism, judging from my clinical experience with scarlet fever, must possess, at different times, different degrees of virulence, which alone can account for the difference between mild and malignant epidemics of scarlet fever. In the early eighties I observed two epidemics of scarlet fever in a sparsely settled district of California. In the first epidemic I did not lose a single patient; five years later I encountered another epidemic in the same district, when one out of every four or five patients died. I recalled then what the older writers had to say about the epidemic constitution of the atmosphere. I believe that teluric and atmospheric conditions influence the virulence of certain disease germs.

Dr. Augustus Wadsworth, Albany, N. Y.: Is there anything unusual about the serum sickness in these cases, and does the serum have any effect on the nephritis?

Dr. Alexander Lambert, New York: Were these cases followed along for more than three weeks to see whether any nephritis developed afterwards?

Dr. C. P. Howard, Iowa City: The skin reaction in scarlet fever as a diagnostic aid has proved of great assistance to me, especially in mild contact cases. When there was sore throat and leukocytosis, but very little evidence of scarlet fever, we would get a negative reaction. We have seen the demonstration of the serum given subcutaneously, and it causes disappearance of the rash in about sixty hours. Another matter of some interest is the lessening of the leukocytosis.

Dr. Francis G. Blake, New York: All these patients had serum sickness. One patient developed a mild nephritis in the third week. He had a large amount of toxin in the urine on the third day of the disease. Another complication was otitis media and sinusitis in a child, present at the time of its admission. During the fourth week the child developed otitis media in the other ear. Another child had a cervical adenitis, which subsided promptly.

An Endocrine Factor in the Chemical Control of Body Temperature

DR. W. B. CANNON, Boston: Boothby has shown that introduction of epinephrin causes increase in the metabolic rate; 1 mg. represents an increase of 50 calories. A stimulation of the splanchnic nerve will cause 40 per cent. increase in metabolism, but not if the suprarenal on that side has been removed. Therefore, this effect is obtained by direct or reflex stimulation. A second point is that suprarenal secretion is increased when the animal is exposed to danger of fall of body temperature. When the animal is exposed to cold the hair rises, which corresponds to gooseflesh in man. This is due to sympathetic or autonomic stimulation. In animals with denervated hearts, it is found that the heart is very sensitive to epinephrin. The temperature of the experimental animal (cat) can be lowered by introducing cold water into the stomach; the animal (or in some cases the human subject) has to warm up that water. We call this establishing a "heat liability," and in the cat used it took 1,160 small calories for 88 c.c. water at 0.5 C. There was a fall of heart rate and then a rise. The heart made a physiologic response and beat more rapidly. With removal of the suprarenal there is from 2 to 15 per cent. less response. When warm water was used there was no heat liability. There was shivering as well as heart rate increase. Therefore, epinephrin secretion is increased to prevent lowering of body temperature. This physiologic response is useful to the organism because if the suprarenal is removed, the heat mechanism is removed. With the suprarenals removed or denervated, shivering is prolonged. Another point is that there should be increase of metabolism when cold water is introduced without shivering. A volunteer who took 750 c.c. of water, at 1.3 C., felt cold at first, but warm later, and had no shivering. I believe from this work that there is a true chemical calorigenesis caused by the suprarenal. This mechanism is also set in motion by fever, as experiments showed.

DISCUSSION

DR. L. G. ROWNTREE, Rochester, Minn.: I should like to relate these observations to some factors in Addison's disease. One feature is the cold feeling of the skin, although the temperature is normal. Patients in the shocklike condition have a very cold feeling. Patients with diabetes insipidus have marked heat liability. One patient drank 35 liters of iced water and was shivering most of the time. If he drank warm water the shivering disappeared.

DR. WALTER B. CANNON, Boston: Recently my attention was called to the experience of individuals living in tropical climates. These persons never drink very cold water; they know from experience that it is a very uncomfortable thing to do. There is a possible relation of this fact with the phenomena I have presented.

Iodin Therapy in Toxic Goiter

DR. E. H. MASON, Montreal: We have found that pure cases of exophthalmic goiter, in which abundant iodin is given, lose the toxic state. Metabolism reaches a normal level in one week. The exophthalmos recedes and the thyroid gland becomes smaller. In exophthalmic goiter, the thyroid cannot completely iodize the molecule, and this is the cause of the toxicity. Iodin enables the gland to manufacture the normal product. Exophthalmic goiter, then, may be classed as a dysthyroidism. Glands removed after iodin therapy show more normal structure. There is normal colloid. Iodin therapy has been used in the thyroid clinic with good results. Typical exophthalmic goiter yields readily to iodin therapy. This is a pure dysthyroidism. In atypical cases, with moderate exophthalmos, the toxicity does not completely disappear with iodin treatment. This is a mixed type, partly dysthyroidism, and partly hyperthyroidism. The latter condition persists in spite of iodin therapy. Hyperthyroidism itself must be corrected by thyroidectomy. The cases of dysthyroidism with hyperthyroidism are very difficult to treat. Some atypical toxic adenomas are benefited by iodin, but there must be more than one type of adenoma functionally speaking. Iodin therapy is a step forward in the treatment of exophthalmic goiter. The necessity for ligation will be infrequent if we use complete medical treatment with iodin in a limited number of cases.

DISCUSSION

DR. HENRY A. CHRISTIAN, Boston: A great deal of damage will be done with iodin in thyroid cases if we get too enthusiastic over these results. Our results in the Massachusetts General Hospital and the Peter Bent Bingham Hospital have shown that iodin is very valuable as a preparation for operation because it controls the situation temporarily in certain cases. The control is limited, and continuation of treatment in a large percentage of cases seems to result in complete loss of benefit from the iodin. If it is discontinued after a considerable period of time, there is a marked increase in symptoms to a point which is much more marked than that prior to the iodin therapy, and, consequently, there is considerable danger in connection with operations, after long use of iodin. Another source of trouble is that the patient is apt to go home and continue iodin dosage at home. Dr. Mason's method of treatment may prevent trouble, but we should recognize that there is still a lot we do not know about the thyroid in relation to iodin, and as clinicians we may cause harm in the course of acquiring knowledge. Though the harm may be unintentional, it may be real.

DR. TORALD SOLLMANN, Cleveland: Is there any reason for giving this unusual form of iodin as chosen in preference to sodium iodid or compound solution of iodin (Lugol's solution)?

DR. ALEXANDER LAMBERT, New York: Iodin therapy is a step forward, but it is not a new step. It is a good clinical method, but we must consider enlargement of the thyroid as a sign of lack of equilibrium of the endocrine metabolism. This results in disturbance of thyroid secretion. This was noticed particularly during the emotional strain and excessive physical fatigue of the war period. The thyroid enlarges in the effort to restore physical equilibrium. A large, soft, fresh enlargement is produced by physical overexertion. Such patients respond to thyroid therapy.

DR. H. S. PLUMMER, Rochester, Minn.: Iodin therapy is based on a definite hypothesis, and this reasoning must be understood in order to know when to give iodin. Exophthalmic goiter is the result of excessive stimulation of the thyroid. Iodin does not act when the product is normal. With a basal metabolism of 80, there is little abnormal product. Compound solution of iodin will not give any effect. Excessive stimulation of the gland will change the picture, and compound solution of iodin will produce effect. Including toxic adenoma cases, we get results with this solution. In one case of toxic adenoma, I did not give iodin. The patient died twelve hours after of typical exophthalmic goiter crisis. I did not give digitalis. I think that digitalis is dangerous and should be avoided. In cases of generalized edema, broken compensation, we give iodin. Iodin has a marked influence on the latent infection. I don't think that it matters which type of iodin is used; in the crisis we can get control of the situation in thirty-six hours after giving compound solution of iodin. I have given unconscious patients 30 drops by mouth or by rectum, up to 100 drops, and the patient would be able to sit up to meals the next day, and would be ready for operation in a week. I do not believe that exophthalmic goiter can get worse under this treatment, except after long periods. Patients used to die before they got it, but we cannot attribute individual results to it. There is a natural fluctuation in the disease.

DR. L. M. WARFIELD, Ann Arbor, Mich.: In 1912, Dr. David Marine suggested giving small doses of iodin in exophthalmic goiter. Dr. Crile gave small doses, and converted a hyperplastic gland into a quiescent one and then operated. I believe we should give credit to Crile for this work in 1912. This was not followed up.

DR. E. H. MASON, Montreal: The only time we gave iodin over a long period of time was when we gave it for eight months, 3 minims a day, and there was no return of toxicity. The question was brought up as regards the harmful use of

iodin in previous years. Iodin was not used intelligently; it was used in cases of pure hyperthyroidism. Now we have differentiated the various types of goiter and we know where to use it. Dr. Marine published a paper recently in which he said that iodin should not be used in exophthalmic goiter. This was after we had started to use iodin.

The Influence of the Thyroid on the Increased Heat Production During Lactation and Pregnancy

DR. DAVID MARINE, New York: Whether there is increased heat production during pregnancy is still actively debated. I have studied this question in rabbits, using sixteen normal animals for study during one or more pregnancies. We also used eleven animals on which partial or complete thyroidectomies had been performed. In the first week of pregnancy there is a drop, and later a marked increase in heat production, which does not fall at parturition, but during the later stages of lactation. As it is impossible to impregnate thyroidectomized animals, we have to impregnate the animal first, and in these animals there is a very slight rise in heat production during pregnancy. I believe there is a rise in heat production which cannot be accounted for by the active metabolism of the fetus; further, that this rise in heat production is stimulated by the thyroid. In pregnancy the thyroid usually enlarges, unless the subject is protected by administration of iodin. Pregnancy and lactation form one period at which goiter develops, the other being puberty. I believe that the increased heat production has a bearing on the development of goiter during pregnancy.

DISCUSSION

DR. WALTER B. CANNON, Boston: Did Dr. Marine make any examination of the thyroid in the offspring? Is it not possible that the thyroid of the offspring might play a part in this heat production?

DR. DAVID MARINE, New York: We have made some such observations, but we do not know whether the fetal thyroid can assist the mother in carrying the increased metabolic rate. We have tried that with the administration of iodin. Iodin given to thyroidectomized rabbits will not help to maintain heat production, but it is carried over into the fetal thyroid by the placenta. Therefore, I think that the thyroid hormones formed in the fetus cannot be transmitted back to the mother.

Early Diagnosis of Gastric Cancer

DR. HENRY A. CHRISTIAN, Boston: We have been in the habit of advising periodic health examinations to detect deficiencies, and I believe that a health examination into our methods of diagnosis would prove helpful. Concerning the early diagnosis of cancer of the stomach, little progress has been made. I do not believe that more accurate diagnoses are made by the roentgen ray or that we detect cancer of the stomach early in its development by this means. My clinical impressions are these: (1) Most cases of cancer of the stomach are definitely described by history taking if the patient presents himself for study; (2) very few cases of cancer of the stomach are unexpectedly discovered by the roentgen ray. These are clinical impressions checked up by hospital records, but not backed up by statistical study of a large number of cases. I reviewed 2,000 cases, and among these were seventeen patients with cancer of the stomach proved by operation or necropsy. Many of the patients had symptoms recognizable by the house staff when they came in. They had a suggestive history and a palpable mass in the abdomen, when examined. One case of cancer was diagnosed ulcer by the roentgen ray; the ulcer was really in the duodenum. Operation eight months later proved the existence of cancer. There were 110 patients with gastric symptoms, with roentgen-ray examination negative for gastric cancer. Seventeen patients were discharged with a diagnosis of gastric neurosis; seventeen had evidence of inflammatory lesions, but not of cancer. In thirty cases diagnosed ulcer, we may find cancer to exist later on. I believe, therefore, that my pessimism is justified, when I say that we are in a very defective condition as regards getting these patients to the surgeon early enough. We must get some better method of diagnosis than we now possess.

DISCUSSION

DR. JULIUS FRIEDENWALD, Baltimore: The difficulties arising in the diagnosis of cancer of the stomach emphasized by Dr. Christian are recognized by all. On the other hand, unless one comes to an early conclusion in these cases, there can be but little hope for cure. I have been in the habit of urging exploratory operation in patients over 40 who manifest gastric symptoms, with a sudden onset, not relieved by a few weeks of medical cure, and especially in those cases presenting an absence of free hydrochloric acid with the presence of lactic acid, and a persistence of occult blood in the stools. Of value, too, in diagnosis are the signs of early stenosis in the form of a partial obstruction, a positive Wolf-Junghans reaction in the gastric contents, and a sustained high blood sugar tolerance curve. However, even with every effort to arrive at an early diagnosis in this disease, our results have been extremely discouraging, as a result, partly, of the fact that most patients are unwilling to submit to exploratory incisions in the early stage of this affection, and partly of the absence of symptoms of indigestion at this period, when the growth may assume considerable proportions without even producing any evidence to the patient himself.

DR. EMANUEL LIBMAN, New York: It is unfortunate that we must all agree that we have made no progress in the diagnosis of early carcinoma of the stomach. In my own experience, the roentgenologist has, at times, found evidences of the disease when I could not make the diagnosis clinically. This occurred particularly when the carcinoma was on the posterior wall or when the patient was still well nourished. Some, at least, of the cases with large growths belong to the group of what I term hyposensitives. This emphasizes the great importance of periodic examination of all persons. It is interesting to note that some cases give no symptoms except when infection of the wall develops. The presence of leukocytosis helps in the diagnosis of such cases. The main clinical complaints are pain, vomiting and fever.

DR. HENRY A. CHRISTIAN, Boston: The points brought out by Dr. Friedenwald and Dr. Libman are signs dependent on rather a late stage of cancer development. They are not early evidence. That is why application of our methods does not discover cancer early. One reason of my skepticism as to surgical investigation is that seventeen years ago Dr. Munroe did a large number of gastro-enterotomies for all sorts of gastric symptoms. There were considerable difficulties in treating these patients later, but we did not discover cancer accidentally any more than the roentgenologist does today. Both these methods must be confessed to have resulted in a surprisingly large number of failures in the effort to discover cancer.

Some New Phases in the Study of Urinary Specific Gravity

DR. O. H. PERRY PEPPER, Philadelphia: Various solids have a constant relationship in the urine. The specific gravity of the urine is the sum of all the specific gravities of the solids contained. Each individual solid contributes to the specific gravity. In these studies the Westphal balance was used, and single voidings and twenty-four hour specimens were studied. No attempt was made to control diet in normal subjects. With nephritic patients we varied the salt and protein elements. The specific gravity examination was divided into (1) that supplied by chlorids and urea; (2) the residual specific gravity, minus urea and chlorid. The solids remained about constant; the urine varied only as to water. Grouped averages of specimens from normal persons varied more widely than specimens from the same person. A group of normal urines was charted and compared with the urine from a group of patients with chronic glomerular nephritis. The latter showed a higher proportion of residual of elements over urea and chlorids than the normal. The chlorid discrepancy is more marked in patients with nephritis with edema; the nephritic patient fails to excrete enough urea and chlorids in the urine. The normal urine has 28 per cent. residual solids, with 72 per cent. chlorids and urea. In the nephritic patient these figures are reversed. I believe that the study of residual specific gravity in the urine of nephritic patients is important.

(To be continued)

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

167: 469-624 (April) 1924

*Alcohol Factor in Eliminating Racial Degeneracy. C. R. Stockard, New York.—p. 469.
*Effect on Kidney of Treatment for Syphilis. A. R. McFarland, Rochester, Minn.—p. 477.
*Growth and Length of Human Intestine. J. Bryant, Boston.—p. 499.
*Variations in Gastric Secretion of Normal Individual. J. R. Bell and W. MacAdam, London.—p. 520.
*Effects of Roentgen-Ray Energy on Spleen. C. H. Harbinson, Albany, N. Y.—p. 529.
*Atypical Spinal Tumor. N. Sharpe, New York.—p. 542.
*Dietetic Management of Diabetes. F. M. Allen, Morristown, N. J.—p. 554.
Insulin in Diabetes. Cases. W. E. Nicely and C. C. Edmondson, Waukesha, Wis.—p. 570.
Routine for Insulin Therapy. L. Jonas and J. H. Musser, Jr., Philadelphia.—p. 586.

Alcohol Factor in Eliminating Racial Degeneracy.—The experimental work done by Stockard on the effects of alcohol shows it to be a decidedly selective agent acting to injure and eliminate only the weaker and less resistant germ-cells, thereby improving the quality of the race. With full appreciation of all the difficulties in transferring the results obtained from the study of one animal kind to another, the following seems to Stockard to be a perfectly conservative and warranted deduction: It is highly improbable that human beings have ever injured or eliminated their normal resistant germ-cells with alcohol. Alcohol has probably eliminated some of the bad. Those nations that have used the strongest beverages through many generations have now, from a standpoint of performance and modern accomplishments, outstripped other nations with less alcohol in their history. This may be due to some selective effects.

Effect of Antisyphilitic Treatment on Kidney.—Data obtained by McFarland seem to show that ordinarily the irritation of the kidney which occurs under treatment for syphilis has a marked tendency spontaneously to return to normal, regardless of treatment. While the measures employed seemed to hasten the process in some instances, the effect is not striking. Withdrawal of mercury seemed to be the most important single procedure in relieving the kidney. Whether mercurial inunctions or intramuscular injections of mercury succinimide are given, seems to make little difference in the time of appearance or extent of renal irritation. The renal irritation resulting from combined arsphenamin and mercury treatment is practically equivalent to the sum of that produced by the two drugs given separately. Patients who have damaged kidneys show a higher degree of reactivity to treatment than normal patients, but recovery seems to be quite as satisfactory. There is a tendency for more severe reactions to occur as treatment progresses. If sufficient time for recuperation is allowed repeated courses of treatment may be given, at least up to three or four, without causing renal damage. There is a marked tendency for spontaneous recovery from the renal irritation, even in the face of continued administration of the drugs. In view of the good prognosis with regard to the nephrosis, the mercury should not be stopped too frequently; the rest periods should be sufficient to control the situation.

Growth and Length of Human Intestine.—Bryant presents a large and, accurate series of data with regard to intestinal growth and length. Evidence is presented to show that Treves is incorrect in stating that all children start life with "practically the same length of intestine." Furthermore, the evidence available does not support his statement that "there is no growth in length of the colon during the first four months after birth." Also, the sigmoid loop certainly is not always of excessive length at birth; therefore, Treves cannot be correct in stating that the uniformly long sigmoid loop goes through identical evolutions in all infants during the first four months after birth. From a surgical point of view, it is of interest to note the minimum length of intestine compatible with adult life, as determined by the measurements in 242 cases. The minimal small intestinal length recorded was 3 meters, the maximal, 8.5 meters. For the colon, the minimal length recorded was 1 meter, the maximal length, 3.25 meters. These measurements do not include the length of the duodenum and rectum. It has been frequently asserted that the tuberculous individual is at a disadvantage on account of having an intestine actually shorter than normal. These assertions are not supported by Bryant's measurements on thirty-eight persons dying of this disease, which indicate that the tuberculous individual has an intestine and colon of normal length. The existence of an intestinal length shorter than normal both as to small intestine and colon, was demonstrated in twenty-eight persons dying of carcinoma, and in twenty-three gallstone cases.

Variations in Gastric Secretion.—A study was made by Bell and MacAdam, by means of the fractional method, of the gastric response of a healthy individual to the same test meal, under the same conditions, on twenty consecutive days. One practical point was disclosed, viz., if a low or normal acid curve is obtained on the first examination, when the clinical history of the patient suggests a hyperchlorhydria, the test should be repeated before a high degree of acidity can be eliminated.

Effects of Roentgen Ray on Spleen.—Harbinson describes the changes that take place in the normal rabbit following roentgen radiation of the spleen. The lethal dose of roentgen rays used in these experiments invariably produced a systematic intoxication and resulted in death on the eleventh day following exposure of rabbits over whose lower abdomen or left hypochondrium it was applied. Direct radiation of the spleen with this same lethal dose, however, gave rise to no apparent clinical symptoms. There was a fall in the leukocyte count characterized by a relative lymphocytosis five days after raying and a return to an approximately normal differential count five days later. A few Türck's irritation forms were found in one of the rabbits ten days after exposure of its spleen. The lower erythrocyte counts and the increased hemosiderin content of the spleen and liver gave evidence of increased erythrocyte destruction. The only findings at necropsy were a pale looking spleen and a large pale liver; the spleen showed no evidence of fibrosis, and no areas of caseous necrosis. An early stage of chromatolysis was found, however. The chief features of the liver sections were the washed-out appearance of the liver cells, the hyperplasia and desquamation of the Kupfer cells and the abnormal hemosiderin content. There was no evidence of injury to the gastro-intestinal canal. The theory that foci of necrosis occurring in the intestinal wall after general irradiation are caused by the elimination of toxinous split-products seems to be untenable, at least so far as the spleen is concerned. Rather, such evidence of injury, together with similar effects produced in the kidney, would seem to be referable to the direct action of the rays.

Atypical Spinal Tumor.—The four cases reported by Sharpe illustrate how atypical the course of a spinal cord tumor may be. Two patients had extradural tumors, involving the cord; one, an intramedullary tumor; and one, a pseudotumor (circumscribed serous meningitis). All of these lesions show features at variance, sometimes widely, with the generally accepted behavior of spinal cord tumor.

Dietetic Management of Diabetes.—The practical point emphasized by Allen is the importance of total calories and body weight in relation to diabetic tolerance and the insulin requirement. Increase of weight requires more insulin. Reduction of total diet and weight makes possible the complete control of symptoms without serious privations in carbohydrate or protein, or excessive use of insulin. In Allen's experience, patients with glycosuria or marked hyperglycemia are subject to various dangerous complications regardless of low or high insulin dosage. The treatment of diabetes has been improved but not simplified by insulin, and neglect of strict dietary care is condemned.

American Journal of Obstetrics and Gynecology, St. Louis

7: 373-504 (April) 1924

*Extraperitoneal Cesarean Section in Mismanaged and Prolonged Labor. A. B. Davis, New York.—p. 373.
Cesarean Section in Ablatio Placentae. J. O. Polak, Brooklyn.—p. 384.
*Microscopic Study of Mechanism of Placental Separation and Extrusion; Central Placenta Praevia Following Braxton-Hicks Version. P. Titus and V. L. Andrews, Pittsburgh.—p. 396.
*Treatment of Placenta Praevia. R. McPherson, New York.—p. 403.
*Uric Acid Content of Human Amniotic Fluid. J. L. Williams and J. A. Bargen, Evanston, Ill.—p. 406.
*Uric Acid in Blood in Toxemias of Pregnancy. E. L. King and W. Denis, New Orleans.—p. 409.
*Hepatitis in Relation to Inflammatory Disease of Abdomen. C. G. Heyd, W. J. MacNeal and J. A. Killian, New York.—p. 413.
*Acute Pancreatitis. L. F. Smead, Toledo, Ohio.—p. 431.
Carcinoma of Cervix and Pregnancy. N. Schilling, New Hampton, Iowa. —p. 440.
Analyses of Blood of Uterine Cancer Carriers. H. Schmitz, Chicago.—p. 449.
Meningeal Hemorrhages of New-Born and Their Remote Consequences. A. Gordon, Philadelphia.—p. 462.
*Aquired Atresia of Vagina. H. Grad, New York.—p. 469.
Hematocolpos in Child of Six Weeks. G. L. Moench, New York.—p. 471.

Extraperitoneal Cesarean Section.—Davis asserts that necropsies on stillborn infants and on those who died soon after birth show that the number of these children who die from cerebral hemorrhage, after unduly long hours which are eventually either terminated spontaneously or by forceps or version, is unwarrantably large. It is this type of case which gives the high maternal and fetal mortality following cesarean section. It is this type of case, with disproportion between fetus and pelvis, long labor, with ruptured membranes, unsuccessful attempts at operative delivery, which, Davis says, has made it impossible for him, in more than 580 cesarean deliveries, to reduce the maternal mortality much below 8 per cent. Since 1918 he has employed for these presumably septic, unfavorable cases, practically the technic of Thomas, which the latter called "gastro-elytrotomy." He has used it in twenty-eight cases and has lost two mothers and seven children, three of which were stillborn and four died after delivery—a maternal mortality of 7.2 per cent., fetal mortality, 25 per cent. Davis says, in closing: Extraperitoneal cesarean section will save some lives that would otherwise be lost. Classical cesarean section would have saved but few of the women.

Braxton-Hicks Version Controls Hemorrhage from Placenta Praevia.—The sections made by Titus and Andrews are said to establish the already clinically known fact that the combined external and internal version of Braxton-Hicks is an efficient method of controlling hemorrhage from placenta praevia. A central placenta praevia may cover a larger portion of the uterine surface than has generally been supposed. A comparatively trivial area of placental detachment may cause serious or fatal hemorrhage.

Treatment of Placenta Praevia.—In the last 591 cases of placenta praevia under McPherson's care, seventy mothers died, a mortality of 12.1 per cent., with a stillbirth mortality of about 42 per cent. The preference in treatment was given to gauze packing, followed in most instances by an internal podalic version, this being done in 354 of these cases. There were thirty-four abdominal cesarean sections, two extraperitoneal cesarean sections, three vaginal systerotomies, twenty Braxton-Hicks operations, forty-three breech extractions and twenty-two craniotomies on dead children, the rest being made up of forceps and normal deliveries.

Uric Acid Content of Amniotic Fluid.—Williams and Bargen were able to demonstrate uric acid and creatinin in human amniotic fluid by Folin's methods. These substances exist in a concentration greater than in the blood. The amount of urea, nonprotein nitrogen and uric acid in human amniotic fluid increases as the term of pregnancy is prolonged. The increase of the nonprotein nitrogen in the amniotic fluid in advanced pregnancy suggests that the fetal urine may be a partial source of the liquid. The greater concentration of uric acid in the amniotic fluid over that in the blood suggests that in the toxemias of pregnancy the increased uric acid of the blood may arise, in part, from a more highly saturated amniotic fluid.

Uric Acid in Blood in Toxemias of Pregnancy.—King and Denis interpret their results as being a confirmation of the observations of Williams, Caldwell and Lyle, and Killian and Sherwin regarding the accumulation of uric acid in eclamptic and preeclamptic toxemias. They believe that the determination of blood uric acid promises to be of considerable value in diagnosis and prognosis in eclamptic and preeclamptic conditions. Their experience has been that in preeclamptic toxemias the increased blood uric acid may serve as a useful test in doubtful cases. They have invariably found that the more severely toxic patient showed extremely high uric acid values, a condition which was associated with little or, in most cases, a relatively small rise in the nonprotein nitrogen, and in cases of recovery with a relatively slow decline toward normal values.

Hepatitis Associated with Chronic Abdominal Infection.—Heyd and his associates are convinced that there are certain types of liver change that are associated with chronic abdominal infection, and which render the patient somewhat of an invalid even after successful surgical intervention. They believe that when an infection is once initiated within the abdomen and its course is chronic that the liver reacts in a variety of ways, but always with some degree of hepatic degeneration, and that in a certain proportion of cases surgical intervention is associated or followed by death due primarily to hepatic insufficiency.

Pancreatitis.—Smead discusses noninflammatory pancreatic necrosis, true inflammatory pancreatic necrosis and true inflammatory pancreatitis and cites cases of each type.

Acquired Atresia of Vagina.—Grad reports the case of a woman whose physician applied a strong caustic to the uterine cervix as a treatment for leukorrhea. The result was a complete vaginal atresia at the upper third. The cervix was dug out of its adherent position and pulled through the incision in the scar of the vagina. The vaginal mucous membrane was then sutured to the cervix, thus restoring the patency of the vagina.

American Journal of Ophthalmology, Chicago

7: 257-336 (April) 1924

Visibility of Ora Serrata. A. Fucha, Vienna.—p. 257.
Adenocarcinoma Probably Arising from Lacrimal Gland. L. M. Francis, Buffalo.—p. 260.
Postoperative Adhesions of Vitreous to Cornea. M. H. Cottle, Chicago. —p. 263.
Refraction of Aphakic Eye; Prescribing of Spectacles. B. Chance, Philadelphia.—p. 268.
Extraneous Factors Bearing on Refraction. W. C. Posey, Philadelphia. —p. 270.
Retinitis and Renal Function in Cardiovascular Renal Disease. H. P. Wagener, Rochester, Minn.—p. 272.
Foreign Bodies in Conjunctival Sac. W. G. M. Byers, Montreal.—p. 274.
Mathematical Values of Snellen Notations. A. C. Snell, Rochester, N. Y.—p. 277.
Lipemia Retinalis. I. I. Muskat, Chicago.—p. 288.
Oculomotor Palsy with Parenchymatous Keratitis in Congenital Syphilis. A. F. Luhr, Buffalo.—p. 293.
Ophthalmoplegia in Syphilitic Basilar Meningitis. A. H. Pember, Chicago.—p. 294.

Archives of Internal Medicine, Chicago

33: 407-532 (April) 1924

*Mechanism of Peripheral Stasis in Myocardial Insufficiency. E. P. Boas and G. Dooseief, New York.—p. 407.
*Mechanism of Absorption of Substances from Nasopharynx. H. L. Blumgart, Boston.—p. 415.
*Observations on Marathon Runners. B. Gordon, S. A. Levine and A. Wilmaers, Boston.—p. 425.
Gastric Secretion, Gastro-Intestinal Motility and Position of Stomach. C. B. Wright, Minneapolis.—p. 435.
*Conduction Changes Accompanying Pericardial Effusion. Local Circulatory Factor in Heart Block. L. T. Gager, New York.—p. 449.
*Symptomatic Polycythemia with Cyanosis and Dyspnea. P. F. Morse, Detroit.—p. 459.
Direct Blood Stream Infection Through Tonsils. S. J. Crowe, Baltimore.—p. 473.
*Histologic Hydrogen-Ion Studies of Kidney. E. J. Stieglitz, Chicago.
Improved Air Valve for Basal Metabolism Apparatus. W. B. Fulton, Washington, D. C.—p. 497.
*Auricular Fibrillation in Goiter. E. A. Baumgartner, C. W. Webb and H. Schoonmaker, Clifton Springs, N. Y.—p. 500.
Lesions Due to Bite of Wheel-Bug, Arilus Cristatus. M. C. Hall, Washington, D. C.—p. 513.

*Skin Reaction to Morphin. J. D. Pilcher and T. Sollmann, Cleveland. —p. 516.
Hydrogen-Ion and Buffer Values of Duodenal Contents of Normal Men. C. W. McClure, O. C. Montague and L. L. Campbell, Boston.—p. 525.

Peripheral Stasis in Myocardial Insufficiency.—The results obtained by Boas and Dooneief in their study give added significance to the high capillary pressures reported by one of them in certain cases of hypertension, and demonstrate again that these high readings were not determined by a high venous pressure.

Mechanism of Absorption from Nasopharynx.—The experiments reported by Blumgart indicate that crystalloids, colloids and, to a lesser extent, particulate matter, traverse the nasopharyngeal mucous membrane by being absorbed by way of the olfactory nerve cells and thence to the systemic lymphatics. The clinical and physiologic significance of these findings is discussed.

Heart and Blood Vessels of Marathon Runners.—Gordon et al. found that the average vital capacity of the lungs in marathon runners was normal, which indicated that prolonged vigorous training did not increase the breathing space of the lungs. The heart was not enlarged, as determined by the roentgen ray, which indicates that years of the most vigorous physical effort did not produce cardiac hypertrophy. Immediately following the race, there was a temporary decrease in heart size, gradually returning to normal in about one day. No "gap" was found in the auscultatory curve of the brachial artery. The systolic pressure immediately after the race was normal, while the diastolic was distinctly diminished. It is suggested that shortly afterward the systolic pressure fell, whereupon both pressures rose to normal.

Conduction Changes Accompanying Pericardial Effusion.—Gager reports the case of a man with a large pericardial effusion, accompanied by a well marked depression of conductivity of the bundle of His, which was readily converted by vagus pressure into 2:1 auriculoventricular block. These phenomena disappeared at once after the removal of 500 c.c. of pericardial liqud. A further point of interest was a definite hypertension, which fell steadily until normal limits were reached and maintained.

Symptomatic Polycythemia.—Five cases are reported by Morse, four of which present clinical features closely resembling Ayerza's syndrome but due to pulmonary fibrosis rather than primary disease of the pulmonary artery. The fifth case illustrates the fact that extensive pulmonary arterial syphilis may occur without Ayerza's syndrome.

Reaction of Kidney Cells.—Animal experiments made by Stieglitz show that when the kidney is secreting an acid urine, the cells of the parenchymatous tubules, both the convoluted tubules, proximal and distal, and the loops of Henle (thick limb) are alkaline in reaction. When the urine is alkaline, these same cells are acid. When the alkalinity of the urine is exaggerated, the acid reaction of the cells is increased. In all the nephritic kidneys studied the damaged cells presented an acid reaction, irrespective of the reaction of the urine. These results indicate that the cells of the convoluted tubules and loops of Henle are essentially involved in the determination of the hydrogen ion concentration of the urine. The reaction of the cells of these tubules bears a constant relationship to the reaction of the urine.

Auricular Fibrillation in Goiter.—Of the three cases reported by Baumgartner, Webb and Schoonmaker, two patients had adenoma, one had exophthalmic goiter; one had a paroxysmal, the other two, established fibrillation. The heart condition improved in all three patients following the administration of digitalis—two receiving small doses, the last (exophthalmic) massive doses. The first two recovered completely from hyperthyroidism and the heart condition, while one died following operation. The authors say that these patients should be given digitalis as other patients with fibrillation are given it, and operation should be performed even if there is fibrillation.

Skin Reaction to Morphin.—Pilcher and Sollmann's work shows that the local reaction to an injection of morphin is not at all modified by the acquirement of systemic tolerance; it is the same in patients during the various stages of habituation and dishabituation, as it is in normal individuals. Scientifically, this result is of interest in confirming the fact that the acquired tolerance does not extend to all the effects of morphin, but that it is confined to certain functions.

Arkansas Medical Society Journal, Little Rock

20: 173-192 (April) 1924

Focal Infection in Relation to Internal Medicine. J. E. Legge, Cumberland, Md.—p. 173.

Boston Medical and Surgical Journal

190: 653-682 (April 17) 1924

*Intermittent Intestinal Obstruction. B. Tenney, Boston.—p. 653.
Private Duty Nursing. A. N. Broughton, Jamaica Plain, N. Y.—p. 657.
*Ovarian Cyst Complicating Pregnancy. C. J. Kickham, Boston.—p. 660.

Intermittent Intestinal Obstruction.—Tenney criticizes the view taken so often that every patient who includes constipation among his complaints, and is relieved of this symptom by constant use of cathartics or laxatives, is really well. On the contrary, he regards such cases with suspicion. He holds that normal intestine in a normal abdomen will act sufficiently if the intake contains enough rough stuff and lubricant, and that failure to respond to the presence of rough stuff and excess of lubricants indicates mechanical obstruction in the intestinal tube or some other real pathology in the abdomen. Intermittent obstruction may be the cause of such symptoms. Abdominal pain, nausea and vomiting are the recurring complaints of patients with partial obstruction. The use of active cathartics for a long period, especially when the constant result is a fluid or porridge-like stool, is suggestive. Five cases are cited: (1) enterolith with constrictions in the ileum; (2) ileal obstruction with dilatation; (3) ileal angulation; (4) double adenocarcinoma of colon, and (5) obstruction in cecum.

Ovarian Cyst Complicating Pregnancy.—Kickham reports a case in which 724 ounces of fluid were evacuated from an ovarian cyst after the patient had given birth to an 8½ pound baby after four hours of labor.

Florida Medical Association Journal, St. Augustine and Jacksonville

10: 263-288 (April) 1924

Hospital Organization and Standardization. J. S. Helms, Tampa.—p. 263.
Public Health. R. E. Barnes, Jacksonville.—p. 266.
Research on Tobacco. J. F. Denton, Sanford.—p. 269.
Nasal Deformities and Their Correction. A. K. Wilson, Jacksonville. —p. 270.
First Impressions of Flight Surgeon. J. D. Benjamin.—p. 273.
Lateral Sinus Involvement; Seven Cases. A. H. Freeman, Jacksonville. —p. 277.
Prenatal Care. S. R. Norris, Jacksonville.—p. 280.
Treatment of Pyelitis by Ureteral Catheterization and Instillation of Kidney Pelvis. J. R. Chappel, Orlando.—p. 283.

Iowa State Medical Society Journal, Des Moines

14: 149-190 (April) 1924

Epithelioma of Face. W. W. Bowen, Ft. Dodge.—p. 154.
Management of Cancer of Breast. A. W. Erskine, Cedar Rapids.—p. 158.
End-Results in Suppurative Otitis Media. T. U. McManus, Waterloo. —p. 161.
Symptoms of Nephritis and Bearing On Treatment. O. H. P. Pepper, Philadelphia.—p. 163.
Coincidence in Surgery. L. Freeman, Denver.—p. 167.
Surgery of Prostate. V. C. Hunt, Rochester, Minn.—p. 171.
Uterine Prolapse and Treatment. J. C. Masson, Rochester, Minn.—p. 174.
Operation and After-Care of Infected Bone Areas. H. W. Orr, Lincoln, Neb.—p. 176.
Roentgen-Ray Diagnosis of Bone Lesions. R. W. Lovett, Boston.—p. 177.

Johns Hopkins Hospital Bulletin, Baltimore

35: 97-132 (April) 1924

Excretion Rate of Urea in Toxemias of Pregnancy. H. J. Stander, E. E. Duncan and B. L. Moses, Baltimore.—p. 97.
*After-Effects of Late Toxemias of Pregnancy. J. W. Harris, Baltimore. —p. 103.
*Gliomatosis of Leptomeninges. W. M. Firor and F. R. Ford, Baltimore. —p. 108.
*Effects of Chronic Irritations on Morphology of Peritoneal Mesothelium. R. S. Cunningham, Baltimore.—p. 111.
*Mode of Transmission of Streptococci Associated with Tonsillitis. A. L. Bloomfield and A. R. Felty, Baltimore.—p. 115.
*Peculiar Morphology of Malarial Parasite in Case of Chronic Malaria in Temperate Zone. J. G. Huck and D. T. Bowden, Baltimore.—p. 122.

*Blood Grouping. IV. Demonstration of Two Additional Iso-Agglutinins (D and Q) in Human Blood. C. G. Guthrie and J. F. Pessel, Lawrenceville, N. J.—p. 126.

After Effects of Late Toxemias of Pregnancy.—In 177 cases reviewed by Harris, the diagnosis of eclampsia was made in fifty-one—in thirty-eight primiparae and thirteen multiparae. Forty-two women were delivered at term and nine prematurely. Nine of these patients died and forty-two were discharged entirely free from any sign of the disease—a mortality of 17.6 per cent. In each fatal case death was directly attributable to the eclampsia. Of the fifty-three babies, double ovum twins occurring twice in the series, thirty-one were stillborn or died during the first three weeks of life, a mortality of 58.4 per cent. Of the forty-two mothers discharged from the hospital entirely free from signs and symptoms of the disease, twenty-seven returned for study one year later, and in twenty-four no evidence of renal damage could be found. Three patients showed positive signs of chronic nephritis. These figures indicate that chronic nephritis is a sequel to be reckoned with in women who have had eclampsia, but at the same time they apparently afford proof of the correctness of the belief that one attack of eclampsia confers at least a relative immunity against its occurrence in subsequent pregnancies. The diagnosis of preeclamptic toxemia was made in eighty-three cases in this series. In none of the patients did the history or physical findings indicate the existence of chronic nephritis during the pregnancy or puerperium in question. On their discharge all of these patients were free from symptoms of the disease. Eighty-five children were delivered. Eight were stillborn or died during the first three weeks of life, including five which were premature, a mortality of 9.4 per cent. Of fifty-five of these eighty-three patients who returned for reexamination at the end of one year, thirty-three had signs of chronic renal involvement. The incidence of chronic nephritis was twice as great in multiparae as in primiparae. These findings demonstrate the incorrectness of the generally accepted view that preeclampsia toxemia rarely eventuates in chronic nephritis. In forty-three cases pregnancy was complicated by nephritic toxemia. Nine women had convulsions. Four deaths occurred; two as the result of uremic coma, one of uremic convulsions and one of hemorrhage resulting from premature separation of the normally implanted placenta. Thirty-nine patients were discharged from the hospital three weeks or more after delivery, all with evidences of chronic nephritis. One of these died in uremic coma six months after delivery. Thirty returned for examination at the end of one year. Evidences of chronic nephritis were present in all, and, in fact, its manifestations were more severe than when the patient left the hospital. Harris feels that these cases bear out the general accepted view that the underlying cause of the complication is a chronic nephritis and that the complication makes itself manifest in increasing severity and at an earlier period in each succeeding pregnancy.

Gliomatosis of Leptomeninges.—Firord and Ford relate the case of a boy, aged 6, who had pain in the back, and paralysis and atrophy of the left leg of one year's duration, hydrocephalus, "convolutional atrophy" of skull, and enlarged sella turcica, with yellow cerebrospinal fluid. A mass of tumor tissue compressing the lumbar cord was removed, but the boy died. Metastatic infiltration of cerebral and spinal meninges from cystic glioma in the region of the infundibulum, and internal hydrocephalus were the principal findings at the necropsy. Nine cases previously recorded in the literature by others are abstracted.

Effects of Chronic Irritations on Peritoneal Mesothelium.—The outstanding facts involved in the results obtained by Cunningham are (1) that the unbroken continuous layer of mesothelial cells lining the peritoneum is essential to prevent the formation of adhesions; and (2) that profound alterations may be brought about in these cells without the development of adhesions, so long as the layer of surface cells is intact. The injection of laked or whole blood, or any other mildly irritating substance, into the peritoneal cavity causes the serosal cells to increase in number and at the same time to round up, becoming at first cuboidal and finally columnar. When desquamation occurs, the remaining serosal cells proliferate rapidly and cover the denuded area. The change may progress until the layer of mesothelium is several cells thick and even in this state it is ample to prevent the development of adhesions. In long continued irritations connective tissue proliferation takes place and small outgrowths appear on the parenchymatous organs, but even here the changed mesothelium rapidly covers the advancing core of blood vessels and connective tissue stroma, preventing the devolpment of adhesions.

Transmission of Tonsillitis.—The transmission of tonsillitis was studied by Bloomfield and Felty. Apparently, aerial (droplet) infection plays no part because the causal organisms are located in a region from which they are not eliminated by this method. Furthermore, since only few and occasional hemolytic streptococci come forward into the mouth at all, contamination of objects, even if placed in the mouth, is relatively infrequent. Expectorated hawkings seem the most probable vehicle by means of which the bacteria are discharged. Hence, transmission must be by direct contact with the patient or with freshly contaminated objects.

Chronic Malaria Caused by Plasmodium Falciparum.—A parasite resembling that described by Stephens as *Plasmodium tenue* was found in a colored man, aged 35. This man had never been out of the state of Maryland and the only history of a malarial infection related to an attack which was probably this infection, sixteen years previously. He had syphilis and while being treated with arsphenamin suffered mildly with chills and fevers at irregular intervals, especially following exposure to cold. The question arises as to whether this parasite found in his blood is identical with that described by Stephens or is merely one form of the already well known types of malarial parasites. The evidence presented indicates that this case may be one of chronic *Plasmodium falciparum* infection relapsing after the administration of arsenic which stimulated the parasite to greater ameboid activity.

Iso-Agglutinins D and Q in Human Blood.—The earlier observations made by Guthrie and Pessel concerning the existence in human blood of at least three iso-agglutinins and the corresponding iso-agglutinogens have been confirmed and extended. A fourth iso-agglutinin (D) has been demonstrated in the serum of one member of "Group II" in association with iso-agglutinin A. Iso-agglutinin D was not found in the serum of any other blood in the series including Groups I, II, III and IV. The corresponding iso-agglutinogen (d) has been demonstrated in the red cells of one member of Group III. It has since been found in the erythrocytes of six additional members of Group III in association with iso-agglutinogen *a*. The presence of iso-agglutinogen *c* in association with iso-agglutinogens *a* and *b* has been demonstrated in the red cells of three members of Group I. A fifth iso-agglutinin (Q) was found in the serum of one member of Group IV. The corresponding iso-agglutinogen (*q*) was present in the red cells of another member of Group IV. Neither this agglutinin nor this agglutinogen were found in any other blood in the series. This agglutinin (Q) was present in lower concentration than the others and therefore required a lower temperature for its demonstration. Its action occurred within one of the four accepted groups rather than between these groups, but in the quality and specificity of the agglutination produced, it was in no way inferior to the others.

Journal of Industrial Hygiene, Boston

5: 447-494 (April) 1924

Laundry Trade. I. Study in Activity and Fatigue. M. Smith, London. —p. 447.

Blastomycosis as Complication of Industrial Accidents. R. M. Carter, Green Bay, Wis.—p. 457.

Cancer Producing Tars and Tar Fractions. E. L. Kennaway, London. —p. 462.

Journal of Laboratory and Clinical Medicine, St. Louis

9: 437-512 (April) 1924

*Basal Metabolism in Office Practice. D. A. Haller and M. M. Clayton, Rochester, N. Y.—p. 437.

*Effect of Insulin on Complement Derived from Insulinized Guinea-Pigs for Wassermann Reaction. O. S. Kretschmer, Pueblo, Colo. —p. 442.

*Senile Atrophy of Liver. I. T. Zeckwer, Boston.—p. 444.
Flocculation Reactions as Substitute for Wassermann Test. F. Green, Montreal.—p. 447.
*Comparative Study of Wassermann and Meinicke Reactions. C. B. McGlumphy, Chicago.—p. 453.
*Reciprocal Relationship of Chlorids and Glucose in Blood. W. W. Herrick, New York.—p. 458.
Technic for Bacteriologic Diagnosis of Bacillary Dysentery. L. O. Dutton, Memphis, Tenn.—p. 463.
Specificity and Sensitiveness of Author's New Complement Fixation Test for Syphilis. J. A. Kolmer, Philadelphia.—p. 468.
Comparative Results of Kolmer Method and Routine Wassermann Technic on Fourteen Hundred Tests. M. Cohen and S. R. Haythorn, Pittsburgh.—p. 476.
Kolmer Method of Complement Fixation for Diagnosis of Syphilis. W. H. Kellogg, A. Wells and D. Beck, Berkeley, Calif.—p. 481.
Apparent Specific Action of Cholesterin Reinforced Antigen in Wassermann Reaction. E. S. Gault, Philadelphia.—p. 486.
*Method of Approaching Cerebellum. G. Eckstein, Cincinnati.—p. 490.

Basal Metabolism in Office Practice.—Haller and Clayton review the results they have obtained in the course of performing 600 basal metabolism tests on 450 selected patients in routine office practice. The same technic and the same apparatus, a portable one, were used.

Insulin Does Not Affect Wassermann Reaction.—Kretschmer states that the pooled serum of guinea-pigs treated with insulin over a short period of time, in whom acute hypoglycemic symptoms had thus been created, showed no appreciable change in its complementary titer in comparison with guinea-pigs not so treated; it retains this property for fully thirty days.

Senile Atrophy of Liver.—Six hundred and eighty-four cases were studied by Zeckwer, in which the maximum weight of the liver was 2,975 gm., the minimum, 600 gm. By charting the results it is shown that the greatest average weight of 1,704 gm. is attained between 35 and 40 years, after which there is a steady decline in weight to an average of 1,054 gm. in persons over 85 years of age. The average weight in males is greater than in females, but the two curves run parallel.

Comparative Value of Meinecke and Wassermann Tests.—Of 1,162 tests made by McGlumphy for purpose of comparison of the Wassermann and Meinicke tests, 1,147 were in agreement, 98.7 per cent. The most striking features of this series of cases are: first, the high per cent. of cases in which the two reactions agree; second, the superior results obtained by the Meinicke test in a small group in which the diagnosis of syphilis was unquestioned. It was possible to obtain clinical data in only a small percentage of the cases examined, but when such data was at hand it furnished conclusive evidence of the value of the Meinicke reaction.

Reciprocal Relation of Chlorids and Glucose in Blood.—In the course of several routine glucose tolerance tests on a miscellaneous group of office patients, determination of the chlorids of the whole blood was also made by Herrick. There was found an inverse relationship between the concentration of glucose and chlorids in the blood after the ingestion of 100 gm. of glucose. This suggests that the chlorids possess the property of shifting to other tissues from the blood, in order to preserve the optimal osmotic conditions in the blood.

Method of Approaching Cerebellum.—To gain access to the cerebellum Eckstein works his way inward directly from the edges of the foramen magnum. There is no need of trephining. The position is accessible, and it secures at once the calamus scriptorius and the lower edge of the cerebellum.

Journal of Philippine Islands Medical Association, Manila

4: 39-82 (Feb.) 1924

*Dysentery Problem in Philippines; Epidemiology of Recent Outbreak. R. G. Padua.—p. 39.
Administration of Provincial Hospitals by Philippine Health Service. S. Y. Orosa.—p. 48.
Primary Ectopic Intraligamentous Pregnancy with Living Baby. B. Roxas and A. Villarama.—p. 50.
Early Medicine in Philippines. A. Villegas.—p. 54.

Dysentery in Philippines.—The mortality from dysentery in the Philippines is enormously high, higher than that of typhoid and cholera. The disease occasionally occurs in epidemic form in certain sections of the islands, usually during the rainy season, and chiefly affects children. The recent epidemic in Leyte Province was one of bacillary dysentery, although some cases of amebic infection occurred synchronously. The spread was progressive from carriers and convalescents through the agencies of polluted drinking water, insanitary sewage disposal, contacts and, perhaps, flies and other insects. For the further curtailment of dysentery Padua recommends: (1) the installation of portable public water supply in the "poblaciones" and "barrios"; (2) the construction of a sanitary system of sewage disposal; (3) the extension of educational propaganda on sanitary and health matters; (4) the enactment and rigid enforcement of suitable legislation for the prompt and compulsory notification of dsyentery cases as well as of other communicable diseases.

Journal of Urology, Baltimore

11: 327-433 (April) 1924

*Cause of Stone in Urinary Tract. W. M. Spitzer and P. Hillkowitz, Denver.—p. 327.
*Resection of Nerves of Kidney for Nephralgia and Small Hydronephroses. E. Papain, Paris, and L. Ambard, Strasbourg.—p. 337.
Myxoma of Bladder a Pathologic Entity. C. R. O'Crowley and H. S. Martland, Newark, N. J.—p. 349.
*Dependent Drainage of Perivesical Region. A. L. Chute, Boston.—p. 365.
*Gradual Decompression in Chronic Vesical Distention. Decompressing Manometer and Automatic Bladder Irrigator. E. C. Shaw and H. H. Young, Baltimore.—p. 373.
Sacral Nerve Block Anesthesia in Surgery of Prostate and Bladder. E. S. Judd and W. R. Meeker, Rochester, Minn.—p. 395.
*Ethylene Anesthesia in Genito-Urinary Surgery. A. B. Luckhardt and H. L. Kretschmer, Chicago.—p. 415.
Position of Ureter Catheters. E. Beer, New York.—p. 425.
Modification of Standard Box for Ureteral Catheters. V. C. Pedersen, New York.—p. 429.
Method for Storing Sterile Renal Catheters. N. E. Tannenbaum, Baltimore.—p. 431.

Cause of Stone in Urinary Tract.—As a tenable theory of stone formation in the urinary tract, Spitzer and Hillkowitz submit the disturbance of colloid equilibrium. The protective action of colloids in ensuring the solubility of the urinary solids is of very delicate balance. The colloidal state is quite unstable, and there is always a tendency to assume a more stable condition by falling out of suspension. The presence of other colloids of opposite electric charge will produce this result. With the removal of the protective colloids, the urine will become subject to the laws obtaining in aqueous solutions, and precipitation of the supersaturated salts will take place. The mere formation of a sediment does not, however, explain the transformation into a stone. Some mortar is necessary to glue the crystals together. The existence of an organic binder in stone has been known for a long time. It is a framework on which the inorganic crystalline structure is built up, and consists, essentially, of irreversible colloids that have been thrown out of suspension.

Resection of Nerves of Kidney.—Details of the technic employed and clinical histories of the six cases in which the nerves of the kidney were resected are given by Papin and Ambard. All of the fat around the kidney and ureter is removed. Care is exercised to preserve the peri-ureteral vessels. The renal pedicle is exposed and the nerve trunks are picked up and divided. The renal artery and vein should be stripped completely of all the nerve filaments which surround them. After completion of the nerve resection it is necessary to do a nephropexy as all of the fatty supports of the kidney have been removed. The method is only applicable in cases of hydronephrosis when no obstruction is present.

Dependent Drainage of Perivesical Region.—Chute asserts that dependent drainage of the perivesical space is especially indicated in suppurations that involve the loose perivesical tissue; the most typical of these conditions is suppurative pericystitis. This type of drainage may, however, be used to advantage in various operations that involve the probable infection of the perivesical tissues deep in the pelvis near the base of the bladder. Dependent drainage carried out in this manner is much more efficient than any type of uphill drainage that can be devised. This drainage is easily carried out; the tissues involved are not important; the time consumed is very short.

Gradual Decompression and Simultaneous Lavage of Bladder.—The apparatus presented by Shaw and Young is said to furnish an accurate method for gradual decompression of the bladder and simultaneous vesical lavage with antiseptics. While the kidney function improves under continuous drainage against gradually decreasing pressure, the danger of infection is obviated and no reaction occurs.

Ethylene Anesthesia in Genito-Urinary Surgery.—In a series of 125 operations carried out under ethylene anesthesia, Luckhardt and Kretschmer have had but one failure. This failure concerned an old man, aged 60, who was cystoscoped under ethylene because of an extremely sensitive condition of the deep urethra. The first administration of ethylene was unsatisfactory because the patient, though perfectly analgesic, never fully relaxed. The second administration resulted in perfect anesthesia.

Kansas Medical Society Journal, Topeka

24: 95-126 (April) 1924

Treatment and Management of Tetanus. L. W. Shannon, Hiawatha. —p. 95.
Appendicitis. P. W. Beckman, Lindsborg.—p. 97.

Medical Journal and Record, New York

119: 381-432 (April 16) 1924

Medical Treatment of Duodenal Ulcer. W. A. Bastedo, New York. —p. 382.
Case of True Pneumotyphus with Submaxillary Abscess. E. C. Follett, Washington, D. C.—p. 385.
Bronchitis. J. Barr, London.—p. 386.
Gastro-Intestinal Symptoms and Epigastric Hernia. L. F. Watson, Chicago.—p. 391.
Renal Infection. S. W. Schapira, New York, and J. Wittenberg, Brooklyn.—p. 392.
Obstetric Paralysis. E. H. Smith, San Francisco.—p. 397.
Results of Lautenschlager-Halle Method of Ozena Operation. J. C. Seal, New York.—p. 398.
Headaches of Nasal Origin. L. Baer, Philadelphia.—p. 400.
*Nasal Polypi and Sinusitis. E. V. Hubbard, New York.—p. 402.
Quinidin in Cardiac Decompensation. M. H. Kahn and S. B. Wilensky, New York.—p. 403.

SUPPLEMENT

Seasonal Curves in Mental Disorders. F. P. Norbury, Jacksonville, Ill. —p. lxxxi.
Intracranial Pressure; Its Determination and Significance in Neurosurgical Conditions. A. S. Maclaire, New York.—p. lxxxv.
Child Family Relation; Psychosexual Study. J. F. W. Meagher, Brooklyn.—p. lxxxviii.
Work of New York Psychiatric Society. S. E. Jelliffe, New York. —p. xcii.
Segmental Cerebral Monoplegia with Jacksonian Epilepsy Due to Subcortical Glioma. D. Reynolds, Kennett Square, Pa., and G. Wilson, Philadelphia.—p. xciv.
Hospital Psychiatric Practice. D. D. Durgin, Central Islip, Long Island.—p. xcv.
Sensory Disturbance of Rectum Following Operation. A. A. Landsman, New York.—p. xcvi.

Nasal Polyps, Sinusitis and Tic.—Hubbard's patient had a pronounced tic, blinking of left eye with contraction of left side of face, varying in frequency and degree. When interested and in conversation, the tic nearly ceased. He had nasal polypi with a thick purulent discharge from the left nostril. From one polypi streptococcus hemolyticus was isolated in pure culture.

New York State Journal of Medicine, New York

24: 597-642 (April 18) 1924

Uveitis. M. L. Lerner, Rochester.—p. 597.
*Management of Heart in Pneumonia. H. Brooks, New York.—p. 602.
*Early Diagnosis of Pneumonia. T. Howard, Brooklyn.—p. 604.
Beginner in Medicine. H. J. Mulford, Buffalo.—p. 605.
So-Called "Acute Pelvis." H. S. Stein, New York.—p. 613.
Differential Diagnosis of Exanthemata. W. L. Somerset, New York. —p. 617.

Management of Heart in Pneumonia.—The most important step in the management of the heart and circulation in pneumonia, Brooks says, is to protect these organs from any unnecessary strain. The patient must be spared every unneedful effort. Once the disease has been diagnosed and an approximate knowledge of the extent and location of the process has been gained, examinations should be made as brief as possible and at as wide intervals as is consistent with the apparent progress of the disease. The position of the patient should be changed as little as possible and in cases of known cardiac defect, in particular, the patient must be moved only as found absolutely necessary. Care must be taken that in cases of visceral cyanosis, however, that the position in bed is frequently enough altered so that orthostatic congestion of pendant portions of the lung is not added to the acute inflammatory process. It is because of this precaution that Brooks is, in general, opposed to many of the local measures of treatment, such as hydrotherapy, application of sinapisms, cupping and the like, which entail considerable disturbance of the patient's rest and throw strain on his circulatory apparatus. He discusses venesection, the use of digitalis, strychnin, camphor, caffein and a few other heart stimulants.

Early Diagnosis of Pneumonia.—Some findings in the early stage of pneumonia are emphasized by Howard: (1) the early increased respiratory rate; (2) the early leukocytosis, and (3) that with or without consistent areas of hyperresonance or impaired resonance, with diminished or roughened breathing, the presence of localized râles is most significant, and that these râles can best be brought out by having the patient cough.

Northwest Medicine, Seattle

23: 153-202 (April) 1924

Malignancies of Oral Cavity. J. A. Pettit, Portland.—p. 153.
Compensation Neurosis. G. E. Price, Spokane.—p. 157.
Stage Operation in Exophthalmic Goiter. J. E. Else, Portland.—p. 161.
Treatment of Exophthalmic Goiter with Iodin. B. T. King, Seattle. —p. 165.
Diverticulitis of Sigmoid; Case. A. A. Matthews, Spokane.—p. 167.
Fractures of Tibia and Fibula Shafts. W. J. Taylor, Port Angeles, Wash.—p. 170.
*Advantages of Local Over General Anesthesia. C. W. Jones, Olympia. —p. 174.
Prevention of Postoperative Hernia Following Laparotomy. L. F. Watson, Chicago.—p. 175.
*Preventing Swimming Pool Infections. C. U. Moore, Portland.—p. 176.
Artificial Pneumothorax. C. E. K. Vidal, Galen, Mont.—p. 179.
*Tropical Sprue; Necropsy. A. S. Rosenfeld, Portland.—p. 181.
Gas Gangrene (Bacillus Aerogenes Capsulatus) Incidence in British Columbia. A. S. Monroe, Vancouver.—p. 184.
Etiologic Relationship Between Certain Nasal Affections and Bronchial Asthma. O. M. Rott, Spokane.—p. 185.
Acute Perforation of Jejunal Ulcer. M. E. Steinberg, Portland.—p. 187.

Prostatectomy Under Local Anesthesia.—Jones reports a case of suprapubic prostatectomy in which he operated successfully under procain sacral nerve block.

License Swimming Pool Operators to Prevent Infection.—Moore suggests that swimming pool operators be licensed as food handlers are, and that monthly reports of bacterial counts of swimming pools be published as is done with dairies.

Tropical Sprue.—In Rosenfeld's case tetany occurred within the last few months of illness. At the first sign of spasm of the fingers, calcium lactate was given by mouth with some relief. Later the symptoms returned with renewed severity and this time with bleeding from the nose, gums, vagina, bladder and rectum. While no chemical determinations of blood calcium were made, Rosenfeld believes that a calcium deficiency was responsible for the muscular spasm and impaired coagulation time in this case. He suggests, therefore, that it might be wise in all sprue cases to supplement therapy with the administration of calcium either by mouth or intravenously.

Philippine Journal of Science, Manila

24: 143-247 (Feb.) 1924

Embryogeny and Postnatal Development of Aphididae. L. B. Uichanco —p. 143.

Southwestern Medicine, Phoenix, Ariz.

8: 157-200 (April) 1924

Liver Function and Liver Function Testing. C. R. Haig, Fort Bliss, Tex.—p. 157.
Embolic Gangrene of Arm; Report of Case. J. R. Moore, Clemenceau, Ariz.—p. 163.
Uterine Prolapse; Treatment. J. C. Masson, Rochester, Minn.—p. 164.
Septic Thrombophlebitis of Lateral Sinus Following Suppurative Otitis Media and Mastoiditis; Four Cases. A. Martin and W. A. Schwartz, Phoenix, Ariz.—p. 168.
Authority of Court to Appoint Medical Experts. W. Wylie, Phoenix, Ariz.—p. 170.
Orthopedic Principles in Industrial Surgery. J. E. Bacon, Miami, Ariz. —p. 176.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Australian Journal of Experimental Biology and Medical Science, Adelaide

1: 1-37 (March) 1924

Effect of Phlorizin on Mortality from Insulin Hypoglycemia in Mice. A. B. Anderson.—p. 1.
*Substitution of Taurine for Cystine in Diet of Mice. M. L. Mitchell. —p. 5.
*Mechanism of Muscular Action. O. W. Tiegs.—p. 11.
Influence of Hydrolysis on Capacity of Proteins to Bind Acids and Bases. T. B. Robertson.—p. 31.

Substituting Taurine for Cystine Does Not Retard Growth.—Experiments with mice have been performed by Mitchell to determine whether taurine can replace cystine in the diet, with special reference to the adequacy of the diet for growth. The evidence obtained appears to show that taurine can, in fact, take the place of a considerable proportion of the cystine in the diet. It is pointed out that this fact does not constitute any evidence that taurine is actually convertible into cystine in the animal body.

Mechanism of Muscular Action.—Tiegs points out that the two membranes of Krause of each muscle fiber are excitable and transmit the excitory stimulus from the region of the end plate to the ends of the fiber. The resulting chemical changes occur within the interfibrillar spaces, and it is the sarcomeres that produce the mechanical response, acting entirely as surface tension machines. Contraction results in the sarcomeres changing from cylindrical to dicebox-shaped structures; it is shown how this change of shape produces a valvular mechanism within the fiber, which, by altering the amount of sarcoplasm in contact with the excitable membranes of Krause, regulates in the most perfect manner the strength of the succeeding muscle twitch. On this mechanism depends the alteration of activity in muscles with change in their degree of elongation. It is shown that lactic acid is liberated from only one of the excitable membranes; conditions within the fiber are such that the other membrane must liberate a basic substance, whose nature and formation have not hitherto been recognized. The passive contracture condition that arises during tetanic contraction is regarded as being due to a temporary adhesion of hydrogen ions to the walls of the sarcomeres. Tiegs believes the conclusion is justified that, if there occurs within a muscle a liberation of an acid and a base through the action, as yet ill understood, of the excitatory impulse on their precursors, then the chain of processes which constitute a muscle twitch must occur, and the nature of these events—the shortening and subsequent relaxation, the shape of the twitch curve, the accompanying heat output, and, lastly, the wonderful capacity which a muscle possesses for automatically regulating its activity in accordance with its state of shortening, may all be deduced from certain well known chemical and physical laws.

British Journal of Tuberculosis, London

18: 43-90 (April) 1924

*Classification of Pulmonary Tuberculosis. S. L. Cummins.—p. 43.
Tuberculosis Prevention Work in England. A. S. Macnalty.—p. 48.
Surgical Treatment of Pulmonary Tuberculosis. A. M. Davies.—p. 51.
Treatment of Tuberculosis by Tuberculin. W. M. Crofton.—p. 54.
Survival Factors in Tuberculosis. D. P. Sutherland.—p. 59.

Classification of Pulmonary Tuberculosis Cases.—In the classification scheme proposed by Cummins, cases are divided and subdivided thus: first, on the history and duration of the disease into—(A) acute initial group; (B) chronic or recrudescent group; (C) acute exacerbations in the course of chronic tuberculosis. Secondly, on the anatomic extent of the lesions (international classification) into—(1) minimal; (2) moderately advanced; (3) far advanced. Thirdly, on the constitutional balance (Inman's classification) into— (*a*) resting febrile, (*b*) ambulant febrile and (*c*) ambulant afebrile.

Calcutta Medical Journal

18: 599-638 (Feb.) 1924

*Difficulties in Treatment of Malaria. U. N. Brahmachari.—p. 599.
*Normal Arneth Blood Picture in Tropics: Bengal. D. N. Banerjee.—p. 615.
Flagellate (Herpetomonas?) in Peripheral Blood Smear of Case Clinically Kala-Azar. J. N. Maitra.—p. 618.
Case of Hydrophobia with Long Incubation Period (Seven Months). A. Chakraverti.—p. 622.

Intravenous Administration of Quinin in Malaria.—Brahmachari states that during attacks of malarial fever the blood pressure is generally low, especially in the pernicious type of cases. At the same time, it is in these latter cases that the most rapid introduction of quinin into the system seems indicated; therefore, one is tempted to administer the drug intravenously. If there is a profound fall of blood pressure during its administration, the operation is dangerous and may even prove fatal. A recent writer on malaria has attributed sudden death in such cases to the introduction of large doses of saline and considers that quinin should always be given in the concentrated form. Brahmachari does not agree with this view. Observations were made by him in order to determine the changes in blood pressure during intravenous injection of quinin. The injections were given in the apyrexial period, except in one case. It appears that intravenous injection of quinin in concentrated solution (10 grains in 20 c.c.) is generally followed by a fall in blood pressure and may cause a disappearance of the pulse for a few seconds. Intravenous injection of quinin in dilute solution (10 grains in 200 c.c.) may be followed by a fall in blood pressure, but this fall is neither so sudden nor so great as when the solution is concentrated; and in many cases there is none. The slower the injection is given the less likely is there to be a fall of blood pressure. The diminished blood pressure may persist for twelve hours or more after the injection. Intravenous injection of quinin should always be given in very dilute form (1:300) and at the rate of 10 c.c. every minute. It should never be undertaken lightly. In concentrated solution it may be followed by transient muscular twitchings and quickness of breathing; therefore, such injection should be made only after frequent and careful blood pressure observations during the operations. The intravenous injection of quinin should be given very slowly in a dilute form, guarded by the administration of pituitary extract or epinephrin and the application of tight bandages over the extremities, especially in cases of the pernicious type of malaria.

Arneth Blood Picture in Tropics.—According to Banerjee, the Arneth index shows a marked "shift to the left" in the tropics, due to the effect of the tropical climate and latent infection, probably malaria. The normal Arneth index of healthy Bengalees is 52.55.

Edinburgh Medical Journal

31: 221-284 (April) 1924

Biologic and Economic Aspects of Comparative Pathology. T. Smith.—p. 221.
Traversing Wounds of Orbit. D. M. Greig.—p. 241.
*Case of Multiple Traumatic Perforations of Small Intestine Without Penetrating Wound of Abdominal Wall. J. Taylor.—p. 263.
Case of Traumatic Involvement of Meckel's Diverticulum. J. D. Gilruth. —p. 265.

Traumatic Perforations of Intestine.—Taylor relates the case of a man who sustained a severe blow on the lower part of his abdomen from an upright wooden stanchion. He vomited his breakfast, and then suffered acute constant, severe, pain. There was no sign of contusion of the anterior abdominal wall. Pain was referred to the lower part of the abdomen. A laparotomy was performed. The first loop of small intestine that presented showed a transverse tear involving all coats and extending from the left or lower aspect of the mesenteric attachment of the bowel to just beyond the antimesenteric border. The length of the tear was 2 inches. The tear was repaired. This perforation was situated about 6 feet above the ileocecal valve. Two other perforations were found—one 4 feet higher up, with a diameter of one-quarter inch, situated on the antimesenteric border; the other a pinhead perforation more proximal. These perforations were closed. The patient recovered.

Indian Medical Record, Calcutta

43: 65-96 (March) 1924

Science of Ayurveda. M. K. G. Sen.—p. 65.
Medicinal Plants of Kashmir. N. B. Dutt.—p. 71.
Active Anaphylaxis. A. T. Roy.—p. 75.

Japan Medical World, Tokyo

4: 53-85 (March) 1924

Variation of Bacillus Typhosus. T. Ohtsubo.—p. 53.
Comparison of Distribution of Glycogen in Mammals and Anuria. Y. Ohohashi.—p. 64.
*Effects of Thyroid Feeding on Silkworms. A. Terao and N. Wakamori. —p. 68.

Effect of Thyroid Feeding on Growth.—Silkworms fed thyroid gland developed more slowly than controls, but worms hatched from the eggs of these parents developed more rapidly than the controls.

Journal of Neurology and Psychopathology, London

4: 299-391 (Feb.) 1924

Pathologic Laughing and Crying. S. A. K. Wilson.—p. 299.
Psychopathology as Branch of Science. B. Hart.—p. 334.
Case of Myasthenia Gravis. E. F. Skinner.—p. 344.

Journal of Pathology and Bacteriology, Edinburgh

27: 145-215 (April) 1924

Serum Constituents Useful in Cultivation of Gonococcus. C. E. Jenkins. —p. 145.
*Hemophilic Bacteria of Normal Throat: Types and Incidence. J. H. Dible.—p. 151.
*Acid-Fast Bacteria as Source of Vitamin B. S. R. Damon.—p. 163.
*Compensatory Hypertrophy of Suprarenals. A. E. Boycott and C. H. Kellaway.—p. 171.
Nonspecific Training of Antibody Production. V. R. Khanolkar.—p. 181.
Titration of Diphtheria Toxin and Antitoxin by Flocculation Methods. A. T. Glenny and C. C. Okell.—p. 187.
*Pathology of Iron Deficiency and Cotton Seed Poisoning in Pigs. J. P. M'Gowan.—p. 201.
*Metastatic Carcinoma of Pituitary Gland and Diabetes Insipidus. A. Piney and I. Coates.—p. 211.

Hemophilic Bacteria of Normal Throats.—In a single examination of the throats of 100 normal and healthy persons forty-seven were found to harbor hemophilic bacilli, Pfeiffer's bacillus being present in thirty. In twenty cases other hemophilic bacilli were present. From these persons, with the addition of five other nininfluenzal subjects, and seven influenza patients, a total of eighty-three strains of hemophilic bacteria were obtained and examined by Dible. Pfeiffer's bacillus accounted for sixty strains. Of the residue, sixteen strains were hemolytic.

Acid Fast Bacteria as Source of Vitamin B.—The experimental work reported on by Damon seems to indicate that certain members of the acid-fast group of bacteria contain within their bodies a substance capable of stimulating rapid growth in young rats that are limited to an experimental ration adequate in every respect except in its content of vitamin B. This observation confirms a similar conclusion tentatively advanced by the author in an earlier paper and seems to justify the inclusion of the substance in the class of "vitamins" inasmuch as it has been demonstrated by the biologic test. The source of this bacterial vitamin does not seem to be clear at this time.

Compensatory Hypertrophy of Suprarenals.—In necropsies made in ordinary cases of Addison's disease, it has often been noted by Boycott and Kellaway that the parts of the suprarenals which have escaped destruction show no signs of compensatory overgrowth. This point was made the subject of experimental study. The fact that excessive activity of these ductless glands is apt to be harmful may be significant in connection with the failure of compensatory growth. There is no reason to imagine that too much muscle or liver or kidney would be harmful, and it is safe for these organs to have powers of growth which in the suprarenals, thyroid or pituitary gland might, by some mistake or bad judgment, bring the organism into trouble. If this conception is correct, it might be surmised that the normal size of the ductless organs would provide a larger reserve than is possessed by those which have a greater power of reactive growth. The idea is not inconsistent with the facts that at least one suprarenal, and most of the pancreas, testis, thyroid or pituitary may be removed without producing any obvious symptoms or interference with their internal secretory functions.

Pathology of Iron Deficiency and Cotton Seed Poisoning.—The pathologic changes occurring in iron deficiency in suckling pigs and in "cotton seed meal" poisoning are described by M'Gowan. These are present mainly in the blood, blood forming organs and liver. Such changes are compared with those occurring in trinitrotoluene and like poisoning conditions, and the similarity of the changes produced are emphasized. Emphasis is laid on the fact that iron plays two distinct and separate parts in the animal economy, first, and of minor importance, as a constituent of hemoglobin and second and of major importance as taking a vital part in the life functions of every cell in the body and especially in the case of the cells of the liver.

Metastatic Carcinoma of Pituitary.—A case of secondary carcinoma of the pituitary gland is recorded and evidence in favor of the conception of causation of diabetes insipidus by secretion of the pars anterior is adduced.

Journal of State Medicine, London

32: 151-200 (April) 1924

*Researches on Vaccine Virus. C. Levaditi.—p. 151.

Vaccine Virus.—According to Levaditi the vaccine ultravirus is endowed with a specific affinity for the tissues derived from the ectoderm and for some organs of endodermic origin, whereas its affinity for the blood and the mesodermic tissues is practically nonexistent. Certain ectodermic cells require a previous irritation which enables them to fix the germ and to allow its multiplication (skin, cornea, brain). The reproductive elements do not require this irritation. Although mesodermic in origin, they attract the vaccine virus because they possess potentially all the characters of the other tissues, no matter what their embryological origin. In order that the vaccine virus may attack a given cellular element, it is necessary that this element be of ectoendodermic origin, and moreover that it should be in a state of active growth, that is, of karyokinetic rejuvenescence by previous irritation (skin, cornea, brain). The case of the reproductive cells is an exception, as they fulfill all these conditions, possessing potential ectodermic characteristics and undergoing an active and rhythmic mitotic proliferation. The fusion of the male and female elements does not prevent this affinity (fertilized ovum).

Journal of Tropical Medicine and Hygiene, London

27: 73-84 (April 1) 1924

*Treatment of Bilharzia Disease in Young. F. G. Cawston.—p. 73.
*Amebic Bronchitis and Frequent Presence of Live Endamebae in Sputum and Urine During Acute Amebic Dysentery. Petzetakis.—p. 74.

Treatment of Bilharziasis.—Experience with the intravenous injection of tartar emetic in cases of bilharzia disease associated with the presence of at least three distinct parasites, has convinced Cawston that a permanent cure can be obtained in every case within a month, and that, generally speaking, the maximum total dose required for a child of 9 years is 9 grains given in twenty-four days, the maximum dose being ⅛ grain. Children of 12 can seldom tolerate more than ⅝ grain and usually require 12 grains given over a period of twenty-four days; children of 15 seldom require more than 1 grain as a dose, and a total of 15 grains given over a period of twenty-four days is generally sufficient to produce a permanent cure. With care, and the use of some such drug to counteract the cardiac depression of most cases, five injections can be given during the first week, five during the second, four during the third and three during the last week. Careful attention must be paid to the degenerative changes that are taking place in the ova throughout.

Amebic Bronchitis.—Independently from cases described under the title "amibiase pulmonaire" (abscess), Petzetakis has found a new form of bronchitis or bronchopneumonia characterized by the presence of live endamebae in the sputum. Owing to hemoptysis, which frequently occurs in these cases, the condition may be mistaken for pulmonary tuberculosis. In some cases pulmonary emphysema is probably produced by the existence of endamebae. In two cases Petzetakis observed the coexistence of tubercle bacilli and endamebae. The infection in the patients with no history of

dysentery might be caused by the inhalation of infected dust. In acute dysentery, very frequently endamebae may be observed in the sputum and urine while the pulmonary phenomena may be insignificant. It appears, therefore, that the endamebae enter the general circulation. He has also found cases of amebic cystitis and nephritis.

Lancet, London

1: 735-786 (April 12) 1924

Foreign Bodies in Bronchi. T. McCrae.—p. 735.
*Longevity of Parasitic Worms. J. B. Christopherson.—p. 742.
*Idiosyncrasy to Epinephrin. H. E. Symes-Thompson.—p. 743.
*Measurement of Ultraviolet Light. A. Webster, L. Hill and A. Eidinow. —p. 745.
*Massive Doses of Digitalis in Auricular Fibrillation Without Heart Failure. J. Jensen.—p. 747.
Case of Fibromyoma of Stomach. J. E. G. Calverley.—p. 748.
*Case of Bilateral Herpes Zoster. E. R. C. Walker.—p. 749.

Longevity of Bilharzia.—The potential longevity of the bilharzia worm in the human body is discussed by Christopherson, and evidence is presented which makes it seem clear that bilharzia worms have a long potential longevity, and do not conform to the conditions which Ray Lankester has laid down as favoring longevity. They display considerable energy throughout their (frequently) long life, traversing the portal veins between the liver and bladder (or rectum). Their generative energy is great, commencing early and continuing through life; they deposit enormous numbers of eggs.

Idiosyncrasy to Epinephrin.—Symes-Thompson relates an instance of the occurrence of disquieting symptoms after the injection of procain and epinephrin for the extraction of teeth. Incidentally, the patient gave a positive reaction to Goetsch's test for hyperthyroidism.

Measurement of Ultraviolet Light.—Webster, Hill and Eidinow make this measurement by means of a standard acetone methylene blue solution and a standard quartz tube. The tube, one with internal diameter of 3 mm., is filled with a solution consisting of two parts of standard methylene blue solution and one part of acetone. The method of procedure is given in detail.

Action of Digitalis in Auricular Fibrillation.—The effect of large doses of digitalis has been studied by Jensen with a view of obtaining information of its pharmacologic effect on the heart rate, the excretion of urine, and the production of vomiting in cases of auricular fibrillation without obvious failure. The patients were dyspneic on exertion, and some also complained of pains about the left breast. None were actually in a state of failure at the time of observation. One or 1½ drams of a standardized tincture of digitalis was administered in the morning; six hours later the second dose, 1 dram, was given, and six hours later still the third and last dose, another dram. The apex beat was frequently counted and the urine measured every six hours. The observations were continued in this way for five days subsequent to the days of administration. The whole of this procedure was repeated after the lapse of a fortnight so as to furnish a second and controlling experiment. The heart rate was in most cases affected to some extent on the evening of the day of administration, about twelve hours after the first dose had been given, and the average fall in rate by this time was ten beats per minute. This fall was maintained the next morning, and later on that day a further fall of ten beats per minute occurred, though no more digitalis had been given. The quality of the pulse was much improved, the volume being larger. In a few cases coupled beats appeared temporarily. The total duration of the effect was from four to fourteen days. Digitalis had no definite diuretic effect on any case. The patients all felt better and said that they had less palpitation. Apart from occasional coupling of the pulse in two cases there were never any indications of overdosage. Nausea and vomiting were never seen—a fact of especial interest, tending to show that the vomiting which sometimes occurs early in the administration of digitalis in heart failure depends far more on the failure of the heart than on any irritant effect of this drug on the stomach.

Bilateral Herpes Zoster.—In Walker's case the distribution of the lesions was as follows: right side: from ninth, tenth and eleventh dorsal vertebrae spreading round the chest to midway between the umbilicus and ensiform cartilage in front. Left side: from fourth, fifth and sixth dorsal vertebrae spreading round underneath the shoulder, above the nipple to fourth and fifth costal cartilages in front, and also down posterior fold of axilla and back of arm. The patient could not recall any previous illnesses, and did not remember being in contact with any cases of herpes zoster or of chickenpox.

Practitioner, London

112: 205-272 (April) 1924

Cancer and Intestinal Stasis. W. A. Lane.—p. 205.
Causes of Intestinal Disease. A. Baldwin.—p. 211.
Tenderness in Acute Mastoid Disease. M. Yearsley.—p. 228.
Diagnostic Value of Blood Analysis. P. J. Cammidge.—p. 234.
Postpartum Convulsions Due to Circulatory Failure; Recovery. T. S. Wilson.—p. 245.
*Arrest of Hemorrhage from Placental Site. J. H. E. Brock.—p. 248.
Fractures of Head of Radius. J. Driberg.—p. 262.

Arrest of Hemorrhage from Placental Site.—The accepted explanation of the arrest of postpartum hemorrhage makes hemostasis a function of contraction and retraction of muscular fibers, thus obliterating arteries and veins in the muscular layer. The explanation put forward by Brock is that the open mouths, themselves, of the sinuses are sealed by the corrugation and infolding of the mucosa, the result of its intimate attachment to the muscular coat, which, being composed of stretched fibers, is only able to shorten and never to extend. Brock holds that postpartum hemorrhage, though partly arterial, is in the main regurgitant venous hemorrhage; so that when a woman bleeds after labor, she is in reality bleeding from the inferior vena cava, for none of the uterine or ovarian veins possess valves. Direct pressure on the bleeding point would be the correct treatment for the condition, and not strangulation by contraction, as usually supposed.

Tubercle, London

5: 305-360 (April) 1924

*Artificial Pneumothorax Therapy. C. Rolleston.—p. 305.
*Principles of Immunity in Treatment of Tuberculosis. S. R. Gloyne.—p. 319.

Artificial Pneumothorax Therapy.—It appears to Rolleston that artificial pneumothorax demonstrates the great value of rest. If early cases were seen early and all of the patients systematically rested in bed for from six months to a year, few, if any, would have to pass through the weary course of collapse therapy, or the more painful ordeal of thoracoplasty. But this ungraduated rest is applicable to advanced cases in which for one reason or another, such as intestinal disease or other more severe complication, collapse therapy is not advisable. As regards the duration of rest, Rolleston is strongly of the opinion that dependence on the thermometer alone is wrong. Pulse, weight, appetite, cough and the state of the intestines ought all to be taken into consideration. Six months for an early case and a year for one of the more advanced cases is the ideal.

Principles of Immunity in Treatment of Tuberculosis.—While immunology has not provided a specific cure and does not appear likely to do so in the near future, still, in Gloyne's opinion, there are not a few ways in which the issue might be more clearly defined. In the first place, he would plead for more precision in the localization of the tuberculous lesion. It is not uncommon to find toxemia continuing after treatment has been instituted, as the result of some concealed lesion such as early renal or abdominal tuberculosis. In such cases specific vaccine treatment may easily do harm before the trouble is suspected. Again, a more rigorous investigation of all patients who have no tubercle bacilli in their sputum would avoid much discouragement in the use of the specific remedy in cases which have been wrongly diagnosed. Thirdly, a good deal of work has been done in recent years on secondary and mixed infections, and careful treatment of these infections has a marked effect on toxemia. Blood counts might also be made more use of with advantage. There is no typical blood picture of tuberculosis, but as an indication of slight toxemia in early cases, a count, if carefully controlled and repeated, is not without value.

Annales de l'Institut Pasteur, Paris

38: 179-272 (March) 1924

Bismuth in Trypanosomiasis and Spirillosis. C. Levaditi and S. Nicolau.—p. 179.
Bismuth Compounds in Treatment of Syphilis. Fournier et al.—p. 240.
*Parasite of Hydrophobia. Y. Manouelian and J. Viala.—p. 258.
Vaccination of Horse Against Anthrax. Brocq-Rousseu and Urbain.—p. 268.

Parasite of Hydrophobia.—Manouelian and Viala describe their technic for staining the supposed protozoon in hydrophobia, which they call "encephalitozoon rabiei." They found it also in the salivary glands.

Annales de Médecine, Paris

15: 201-279 (March) 1924

*The Cerebral Ventricles in Syphilis. Cestan et al.—p. 201.
Conducting Fibers and Automatic Centers in the Heart. R. Lutembacher.—p. 223.
Orthostatic Albuminuria. A. Hanns and J. Cuny.—p. 237.
Pulmonary Gangrene. A. Lemierre and Léon-Kindberg.—p. 244.
Anergy in the Tuberculous with Liver Disease. L. Daniello.—p. 268.

The Pathologic Physiology of the Cerebral Ventricles in Syphilis.—From their systematic comparative study of the ventricle and spinal fluids in sixteen syphilitics, Cestan, Riser and Péres conclude that the difference between the fluid obtained from the ventricle and that obtained by lumbar puncture, as determined especially from researches in syphilis, is due partly to the presence or absence of inflammatory lesions in the ventricle region and partly to the fact that the rigidly maintained direction of the cerebrospinal fluid current is always from the ventricle out toward the subarachnoid spaces. The movement of this current can be tested by injection of a stain into the ventricle and subsequent spinal puncture. This stain test is instructive only when artificial hypertension subsequent to the intraventricular injection is avoided.

Annales des Maladies Vénériennes, Paris

19: 161-240 (March) 1924

Secondary Syphilis. J. Golay and L. Weyl.—p. 161.
Medical Supervision of Prostitutes. H. Gougerot.—p. 182.
*Resistance of Armenians to Arsphenamins. H. Mouradian.—p. 196.
Syphilitic Glossitis. O. Eliascheff.—p. 207.
Orchitis from Colon Bacilli. Goubeau.—p. 211.

Resistance of Armenians to Arsphenamins.—Mouradian concludes from the extreme tolerance of Armenians for arsphenamin that their organic superiority over all other races is incontestable.

Archives des Maladies du Cœur, etc., Paris

17: 129-192 (March) 1924

*Shadows of Erythrocytes After Transfusion. Van der Hoff.—p. 129.
Improved Orthopercussion. I. Révai.—p. 140.
Aneurysm of Left Auricle. A. Rosselet and E. Bach.—p. 145.
Mediastinitis; Aortitis; Two Aneurysms. Bordet and Giroux.—p. 152.

Shadows of Erythrocytes After Transfusion.—Van der Hoff determines the number of shadows of erythrocytes by comparing the usual blood counts with controls made with the dark-field microscope. Normally about 10,000 to 20,000 shadows are circulating. He observed up to almost 200,000 after blood transfusions. The hemoglobin index varies after the transfusion in inverse proportion to the number of erythrocytes.

Bulletin de l'Académie de Médecine, Paris

91: 439-472 (April 8) 1924

Medical Education and the Faculties. G. Weiss.—p. 443.
*Moving Picture of a Chemical Reaction. E. Fourneau.—p. 458.
*Cecal Spirochetosis. G. Delamare et al.—p. 462.
*Electrocoagulation of the Prostate. G. Luys.—p. 464.
Calcium Metabolism in an Adult Man. E. Manoussakis.—p. 467.
Research on Calciuria. E. Manoussakis.—p. 469.

Kinematographic Representation of a Chemical Synthesis.—As already mentioned in these columns, Fourneau with his co-workers has discovered the chemical formula of the drug known as "Bayer 205," and has produced the drug. He has made a moving picture of the process of the chemical synthesis. The molecular weight of the substance is 1,400, and the tolerated dose is 160 times the curative dose.

Cecal Spirochetosis.—Delamare, Djémil and Architouv discuss the relation between certain deficiency diseases and proliferation of spirochetes in the mouth and digestive tract.

Hypertrophy of the Prostate.—Luys reports that he has reduced the size of the enlarged prostate in 115 cases by electrocoagulation applied by the natural route under control of the eye. In 4 of the 115 cases there was congenital malformation; in 3 cases chronic ulceration of the prostate; in 4 a polyp in the urethra; in 3 cancer of the prostate, and in 41 cases there was merely a bar formation in the prostate, an actual dike between the prostate and the urethra. The intervention was successful in 86.06 per cent.; in 8 cases the treatment was abandoned for various reasons, and in 4 the prostate was so large that its removal was imperative. This is the only contraindication to the electric method.

Bulletin Médical, Paris

38: 429-456 (April 19) 1924

*Radiodermatitis. Jeanselme and Giraudeau.—p. 435.

Radiodermatitis.—Jeanselme and Giraudeau state that the acute or chronic dermatitis liable to follow the use of radium rays cannot be distinguished from the dermatitis from roentgen-ray exposures except, possibly, that the pain is less severe in the acute form. Preceding inflammation increases the susceptibility to the rays, while the susceptibility decreases with the age. Cells that develop rapidly, such as those from the malpighian layer, basal cells, are more sensitive than prickle cell epithelium. They have noted that the skin is particularly susceptible when there is endocrine derangement, as in exophthalmic goiter. Treatment of a radiodermatitis, they say, should be that for a burn in general. The infrared rays may prove useful as they are considered antagonists to the roentgen rays on account of their longer wave lengths. Skin grafting may be needed for persisting ulceration. The keratosis and ectasia of vessels in chronic dermatitis might be treated by cryotherapy, while abnormal proliferation of epithelium may require electrocoagulation. Roentgen-ray epitheliomas have sometimes subsided under radium exposures. They give a list of the different tissues and different skin affections classified according to the susceptibility to the rays. It seems to be most pronounced in leukemia, psoriasis and eczema, and least pronounced in chondromas.

Médecine, Paris

5: 405-480 (March) 1924

Recent Literature on Circulatory, Renal and Blood Affections. P. Ribierre.—p. 405.
*Mild and Masked Aortitis. Leconte.—p. 415.
Auricular Fibrillation and Cardiac Thrombosis. A. Dumas.—p. 421.
*Murmurs from Exertion. H. Bonnin.—p. 426.
Bradycardia from Complete Dissociation. Doumer.—p. 431.
*Cerebral Disturbances in Hypertension. E. Donzelot.—p. 434.
*Treatment of Edema. A. Lemierre and J. Lévesque.—p. 438.
Kidneys and Antisyphilitic Treatment. L. Lortat-Jacob.—p. 444.
*Treatment of Orthostatic Albuminuria. L. Ramond.—p. 449.
Diuretic Treatment. P. Harvier.—p. 452.
Nature of Bright's Disease. H. Chabanier et al.—p. 457.
Leukanemia. J. Rieux.—p. 463.
*Syphilitic Pseudoleukemia. A. Nanta.—p. 467.
Diagnosis of Acute Leukemia. A. Touraine.—p. 470.

Mild and Masked Aortitis.—Leconte reviews the symptoms of slight affections of the aorta. The pain may be limited to the sternum or "decapitated"—localized exclusively in the periphery (arms, hands, chin); sometimes there are only palpitations or short attacks of tachycardia, but radiographic examination reveals a broader shadow or an opacity of the aorta. Wassermann's test may be positive. General disturbances, as headaches, loss in weight, fainting spells can be caused by aortitis. The diagnosis is frequently wrong in the gastralgic and abdominal forms. The patients are treated for various ailments, especially because the pains start after meals. The more oppressive and less acute character of the pain, the inciting influence of exertion, and the occasional association with a feeling of numbness or pain in the arm may lead to a correct diagnosis. Meteorism, nausea and diarrhea occur in the abdominal form.

Murmurs from Exertion.—Bonnin points out that a systolic murmur at the apex may be present during the transitory

tachycardia after exertion." It does not indicate a mitral insufficiency. He believes that it is of extracardiac origin.

Cerebral Disturbances in Hypertension.—Donzelot deals with sudden transitory attacks of blindness, anesthesia, dizziness and similar cerebral disturbances in patients suffering from hypertension. He attributes them to local spasms of arteries.

Treatment of Edema.—Lemierre and Lévesque recommend peripheral drainage and repeated punctures of the serous cavities in patients with irreducible edema. The results are good in Bright's disease as well as in cardiac decompensation. Digitalis acts sometimes only after this peripheral damming of the circulation is removed.

Treatment of Orthostatic Albuminuria.—Ramond emphasizes the necessity for good nutrition in children and adolescents with orthostatic albuminuria. A diet such as prescribed in nephritis is contraindicated.

Syphilitic Pseudoleukemia.—Nanta describes generalized affections of the lymphatic glands, which occur sometimes in late stages of syphilis. In his two cases there was an absolute and relative neutrophil leukocytosis (once an eosinophilia). Specific treatment is indicated.

Presse Médicale, Paris

32: 321-332 (April 12) 1924

*Aneurysm of the Aorta. André-Thomas.—p. 321.
*Treatment of Gonorrhea. A. Tansard.—p. 324.
Azurophil Blood Count. L. M. Betances.—p. 326.
Immunotransfusion. P. Pagniez.—p. 327.

Syndrome of the Sympathetic Chain and Aneurysm of the Aorta.—André-Thomas draws attention to the frequency of signs of lesion of the thoracic sympathetic in patients with aneurysm of the aorta. Circulatory and temperature disturbances, unilateral absence of sweating, and the loss of the pilomotor reflex may be found if looked for on the upper extremity and head. In the case he reports, nothing indicated that the muscle tonus depends on the preganglionic fibers of the sympathetic.

Vaccine Therapy and Milk Injections in Gonorrhea.—Tansard uses both a specific vaccine and parenteral injections of milk in the treatment of acute and chronic gonorrhea and its complications.

32: 333-340 (April 16) 1924

*Paradoxes of Artificial Pneumothorax. Piguet and Giraud.—p. 333.
*Uremia and Psychopathies. R. Targowla.—p. 336.

Some Paradoxes of Artificially Induced Pneumothorax.—Piguet and Giraud report from Leysin the case of a woman, aged 34, who had daily hemoptysis for three months after apparently successful compression of the left lung—the seat of unilateral tuberculosis. The sputum had never been hemorrhagic before, although numerous small cavities had been developing for five months in the lower lobe. The blood pressure was not high at any time; the sanatorium treatment had been continued unmodified, and the patient is now thriving. In a second patient the lesions were bilateral and there had been hemoptysis before the pneumothorax and it continued afterward. The compression of the lung was abandoned, and there has been no hemoptysis since. They comment on the conflicting opinions that prevail as to the condition of the compressed lung, saying that in Europe less than fifty necropsies have been published after therapeutic pneumothorax.

Is the effect a hyperemia from venous stasis which aids in development of fibrous tissue, or is the effect merely from the impossibility of the compressed lung to develop new foci? The latter view is shown to be untenable by a case described in which new foci had continued to develop notwithstanding satisfactory compression of the lung. After a period of apparent subsidence of all symptoms under the influence of the artificial pneumothorax, there was a flaring up of the old symptoms, with fever, bacilli swarming in the sputum and râles at a new point, while the pleura and other lung showed no signs of disturbance. They know of only one case on record comparable to this and, in both, the case progressed favorably thereafter. Necropsy in a case in which artificial pneumothorax had failed to arrest the course, revealed the old ulcerations and also some recent ulcerating foci at other points in the completely collapsed lung. In another case, fresh tubercles were found in a lung that had been completely compressed for fifteen months. In conclusion they remark that the numerous successes of pneumothorax treatment are ample proof that this method of treatment has nothing to fear from such exceptional paradoxic occurrences, and can only gain by careful study of its mechanism.

Uremia and Mental Disease.—Targowla describes a case of lead poisoning with two phases of mental disturbance. During the acute psychopathy the urea content of the blood was high, and this uremia persisted after subsidence of the mental derangement. He was able to distinguish between the elements of the uremia syndrome and those of the psychopathy proper. The latter accompanied a febrile clinical picture indicating insufficiency of the liver. He does not incriminate the uremia for the psychopathy, but says that it gives a special imprint to the latter (asthenia, torpor, somnolence, apathy).

Progrès Médical, Paris

241-256 (April 19) 1924

*Unilateral Gangrenous Diphtheria. Bourgeois and Aubin.—p. 241.
*Incipient Phase of General Paralysis. J. Lévy-Valensi.—p. 242.
General Review of the Pathology of the Teeth. Boissier.—p. 245.
*Reconstruction of Family Life. A. Rodiet.—p. 255.

Unilateral Gangrenous Diphtheria of the Pharynx.—The symptoms were of three days' standing when the young man applied to the ear and throat department of the hospital for an emergency operation as the aspect suggested a gangrenous phlegmon of the right tonsil. The prostration was extreme, but under diphtheria antitoxin and gangrene antiserum the blackish fetid masses were expelled by the fourth day. The patient was left with paralysis of the velum and of the constrictor muscle of the pharynx, headache, and some disturbance in accommodation.

The Onset of General Paralysis.—Lévy-Valensi declares that the faculty of self-criticism is not always lost, at least in the early stages of general paralysis, and that a negative Wassermann reaction does not necessarily exclude it. Another dogma which he disputes is that general paralysis is incurable. It is possible, he contends, to arrest the disease, and, if treatment can be begun early enough, to cure it. The warning symptoms are a previously unknown irritability, inability to concentrate the attention, to remember recent happenings. A history of some brief maniacal excitement or period of morbid depression in the course of syphilis indicates a predisposition long before the dementia develops. In certain cases, neurasthenia or mental confusion may give the clue, or headache, insomnia. Twitching of muscle fibers, difficulty in swallowing, tremor, hesitating speech, tripping on certain words, the handwriting jerky (periods all commas, the v's with rounded bottoms). He adds that in every case of melancholia or mania, a search for syphilis should be made; prompt treatment may ward off general paralysis later. The family should be investigated at the same time. One of the earliest manifestations of general paralysis in exceptional cases is to stimulate the brain to extra fine work. In business, audacious enterprises may be undertaken which are based on good reasoning, and succeed, or a writer may turn out numerous and valuable works. The brain seems to be speeded up for a short time. One physician who had never written much began to write important and valuable articles; he died from general paralysis by the end of the second year. Women sometimes display a passion for collecting gloves, stockings, or other articles that they cannot use. A theft without precautions against being caught, exhibitionism, often from heedlessness, may sound the alarm; one man, previously normal, started to urinate in the presence of ladies.

Reconstruction of Family Life for War Victims.—Rodiet comments with approval on the village of Pontvillain in Belgium where an effort has been made to reconstruct a family life for the persons of all ages left stranded and alone by the mishaps of the war.

Schweizerische medizinische Wochenschrift, Basel

54: 341-360 (April 10) 1924

*Lumbalgia. F. Zollinger.—p. 341.
Invagination of Jejunum in Stomach. A. Wydler.—p. 347.

*Diastolic Pressure. Engelen.—p. 349.
*Simple Treatment of Hiccup. T. Hishikawa.—p. 352.
Treatment of Asthma. L. von Gordon.—p. 352. Cont'n.

Lumbago.—In his official duties as physician of the Swiss Accident Insurance Institute and in his private practice, Zollinger has encountered about 500 cases of lumbago. The physicians call it this in the noninsured patients and treat it correctly by prescribing salicylates. In patients who are insured against accidents, it figures as a sprain of the muscles or spinal joints, but is also treated with salicylates. He observed on himself and in the first class of patients that a feeling of stiffness frequently precedes the acute pain. Affections of the nose, pharynx or teeth are usually present. The pains occur more frequently with alcoholism. The dorsal muscles and tendons are not easily torn, and such pain does not last long. Contracture of the muscle, functional scoliosis and Lasègue's sign of sciatica are frequent in lumbago. He considers the condition as an infectious neuritis which may have been made worse by an accident. Only patients who can prove some sudden incoordinated muscular action at the moment of the onset of the pain can be accepted for accident indemnity.

Diastolic Pressure.—Engelen agrees with Sahli in considering the diastolic pressure determined by Korotkow's method as too high. This is due to the venous stasis below the arm cuff. The figures obtained correspond rather to Sahli's optimum pressure (maximum energy value of the pulse).

Simple Treatment of Hiccup.—To stop hiccup, Hishikawa recommends inducing the sneezing reflex by irritation of the nasal mucosa with a feather or a piece of paper. [This method was recommended by the physician Eryximachos to another guest in Plato's Symposion.—ED.] Vomiting also cures hiccup. Both methods act by stretching the diaphragm.

Archivio Italiano di Chirurgia, Bologna

9: 109-220 (March) 1924

*Experimental Gastric Ulcer. N. V. Bedarida.—p. 109.
The Logical Practice of Surgery. B. Schiassi.—p. 148.
Mesenteric Cysts of Suprarenal Origin. E. Rietti.—p. 175.
Histogenesis of Cysts in Spermatic Cord. I. Arzelà.—p. 197.

Experimental Production of Gastric Ulcers.—Bedarida injected a small amount of a 0.25 per cent. solution of neurin into the anterior wall of the rabbit stomach, keeping in the muscle or submucosa. In about eighteen hours a gap had developed in the mucosa, and this became a fibrous ulcer in the course of three to twenty-four days. Neurin has a specific paralyzing action on the motor nerve terminals in muscle and on the sensory-secretory plexuses of the submucosa, and consequently the ulcer that results from its injection has the character of a true neurotrophic lesion.

Chirurgia degli Organi di Movimento, Bologna

8: 213-424 (March) 1924

*Fibula in Place of Tibia. D. Fieschi.—p. 213.
Routes of Gravity Abscesses. S. Vacchelli.—p. 244.
Osteophytes Around Paralyzed Joints. R. Zanoli.—p. 277.
*Neurotization of Muscle. G. Serra.—p. 301.
Congenital Radio-Ulnar Synostosis. D. Giorgacopulo.—p. 342.
Lumbarization of Sacral Metamere. G. Benassi.—p. 357.
Flexed Ankylosis of Knee. S. Marconi.—p. 383.
Interstitial Myositis of Adductors. E. Leo.—p. 411.
Air-Tight Dressing Serves as a Vaccination. S. Solieri.—p. 421.

Fibula to Replace Tibia.—Fieschi urges more general use of the method of shifting the fibula to fit into the stump of the tibia above and below when a segment of the tibia has had to be removed on account of osteomyelitis or crushing injury. He gives an illustrated description of his five cases which demonstrate the excellent results, the fibula growing stronger and larger. The difference in the growth of the legs thereafter is more marked the younger the subject, but it is practically negligible at worst. He declares that this should be the routine procedure in cases of grave injury of the tibia.

Direct Neurotization of Paralyzed Muscles.—Serra did not find evidence of regeneration, such as others have reported, although the function of the muscles was restored in all but two of the twenty-two rabbits. They were under observation for periods up to 136 days. The entire external popliteal nerve or merely half of it was switched to the gastrocnemius muscle, restoring physiologic conditions so far as electric tests, myograms and preparations of the muscle and nerve were concerned, but the muscle always looked different from its sound mate in color, size, consistency and weight. The results were equally favorable when he used an autograft of nerve or a homogenous graft as a free implant to bridge the gap between the nerve and the muscle. This technic enlarges the sphere of the method of direct neurotization of a paralyzed muscle or of two muscles.

Archivos Latino-Amer. de Pediatría, Buenos Aires

18: 65-128 (Feb.) 1924

*Epilepsy in Children. A. Gareiso.—p. 65.
*Acute Meningitic Syndromes. A. Casaubón.—p. 84.

Epilepsy in Children.—Gareiso states that in 30 per cent. of the epileptics he has encountered in hospital practice there was a history of convulsions in early childhood. The proportion was even larger in private practice. He agrees with those who regard epilepsy as always the result of some organic lesion of the brain. As Lasègue says, "The brain has lost its virginity." Intoxications, infections, birth injuries, syphilis may be the primary cause or the secondary inciting cause, and convulsions in a child call for thorough study of the case to remove these factors to the utmost possible.

Serous Meningitis in Children.—Casaubón asserts that what is generally called "meningeal reactions" is in fact an acute meningitic syndrome, although the cerebrospinal fluid may be normal. Tuberculosis and syphilis are often predisposing factors, although too attenuated to induce the classic meningitis. In the purely serous form, the symptoms of intracranial hypertension predominate, tenacious headache, fundus changes and vomiting, while the Kernig sign and rigidity are absent. Lumbar puncture and treatment as for syphilis should be thought of first.

Archiv für Gynäkologie, Berlin

121: 363-638 (March 20) 1924

*Testing the Virulence of Streptococci. C. Ruge II.—p. 363.
Latent Infection and Obstetric Management. Heidler.—p. 429.
Results in Five Hundred Genital Carcinomas. J. Schulte.—p. 446.
*Does Hemophilia Exist in Woman? Bauer and Wehefritz.—p. 462.
Mechanical Aspects of Childbirth. A. Mueller.—p. 502.
Terminal Loss of Weight in the Pregnant. W. Kemper.—p. 604.
The Metabolism During Pregnancy. A. Mahnert.—p. 620.
*Protein-Rich Food in Pregnancy. G. Kaboth.—p. 631.

Testing the Virulence of Streptococci.—Ruge describes his microscopic method which gives reliable findings in three or four hours as to the prognosis in obstetric work. The clinical course has almost invariably confirmed the prognosis based on the findings when 0.5 c.c. of the woman's own defibrinated blood was inoculated with two or three loops of secretion from the vagina or uterus. If the secretion presents a milky, crumbly appearance and has an acid reaction, we can usually count on a pure culture of Döderlein's vaginal bacilli and the absence of cocci. If examination of a stained smear confirms this assumption, no further testing of the secretion is required and the prognosis for the course of the puerperium is favorable. Otherwise, a loopful of the mixture of blood and secretion on an object glass covered with a slide and immediately protected with wax, is put under the microscope in the incubator, and examined frequently to determine the behavior of the bacteria and the leukocytes. Smear preparations (stained with methylene blue) of the blood-secretion mixture serve to confirm and control the direct microscopic observation and to establish the increase or diminution of bacteria and of phagocytosis. On the basis of this microscopic test of virulence, an unfavorable prognosis was reached in the cases of twenty-six women, and fourteen in this group died from puerperal infection, while in three further cases a moderately severe and in eight cases an exceedingly grave puerperal infection resulted. In only one case was there smooth recovery.

Does Hemophilia Exist in Woman?—Bauer and Wehefritz conclude from their investigations that in the light of our present knowledge hemophilia in woman must be denied. The clinical picture that simulates hemophilia in the female, essential thrombopenia, appears from recent experiences to be curable.

Effect of Protein-Rich Food on the Pregnant Organism.—Kaboth reports as the results of his investigations, including the testing of urea formation, that even intensive ingestion of proteins by the pregnant causes no disturbance of the principal function of protein metabolism. An injurious effect of protein-rich food on the physical well-being of the pregnant is not demonstrable, provided the intake of carbohydrates is not markedly reduced.

Beiträge zur klinischen Chirurgie, Tübingen

131: 261-488, 1924

*Multilocular Hydatid Disease of the Liver. A. Läwen.—p. 261.
*Renal Tuberculosis. L. Heidrich.—p. 268.
*Sacralization of Lumbar Vertebra. M. P. Schüller.—p. 281.
*Spontaneous Healing of Sarcoma. E. Cordes.—p. 301.
*Exophthalmic Goiter. Bittorf.—p. 317. Idem. Melchior.—p. 331.
*Traumatic Injury of the Thyroid. B. Schwoerer.—p. 350.
Dislocation, or Hemorrhage in or Around a Goiter. Idem.—p. 359.
*Spontaneous Hemorrhage in a Goiter. Idem.—p. 362.
*Operations for Intestinal Parasites. A. Dieckmann.—p. 373.
Is Embolism a Factor in Loose Bodies in Joints? Axhausen.—p. 386.
Dissecting Osteochondritis. O. Häuptli.—p. 395.
Origin of Loose Bodies in Joints. A. Schmidt.—p. 409.
Origin of Cholangitis and Cholecystitis. H. Boit et al.—p. 420.
Idiopathic Cyst in Common Bile Duct. F. Neugebauer.—p. 448.
*Tardy Injury from Roentgen Rays. H. Rahm.—p. 456.
Wound Diphtheria. W. Grossmann.—p. 461.
General Anesthesia. V. Dumpert.—p. 478.
Internal Incarceration of the Bowel After Gastro-Enterostomy. E. Steden.—p. 486.

Resection of Liver.—The multilocular hydatid cyst required resection of a portion of the liver 12 by 6 by 8 cm. in size. The diagnosis had been cancer of the liver or gallbladder, and the gallbladder was removed at the operation as it contained calculi and the tumor encroached on it. The man, aged 42, has entirely recovered.

Operative Treatment of Renal Tuberculosis.—Thirty-seven of the 110 cases were given conservative treatment and 16 soon died; 75 per cent. of the remaining 21 are great sufferers from manifestations from the kidneys or bladder. Of the 73 operative cases, 36 have been traced to date, all completely or almost completely cured, the interval since from one to fifteen years. About 8.2 per cent. died in a few days after the operation, and 22.8 per cent. since, generally from the progress of other tuberculous lesions. The loss of one kidney does not seem to weaken the subject; one of the nephrectomized served at the front during the war. But the danger of involvement of the other kidney is greater than hitherto supposed. Not less than a third of the deaths since were from tuberculous processes in the other kidney. However, 45 per cent. complete recoveries tells the story of the efficacy of nephrectomy in such cases.

Sacralization of Lumbar Vertebra.—Schüller's analysis of a number of cases of pain ascribed to pressure on nerves from deformity of the fifth lumbar vertebra, has convinced him that ordinary sciatica or lumbago is responsible for the pain. The developmental defect is merely a casual coincidence.

Spontaneous Subsidence of Sarcoma.—Cordes resected supposedly completely a small-cell sarcoma in the superior wall of the bladder of a woman, aged 33. Six months later the cystoscope showed recurrence of the tumor, as large as at the first operation. Electrocoagulation was cautiously applied and six months later the aspect was nearly the same, the tumor rather smaller than before, the general health excellent. The sarcoma removed at the first operation showed a tendency to hyalinized connective tissue and cyst formation toward the center, and this transformation has evidently continued, as a kind of spontaneous healing process, confirmed by the absence of necrosis or cellular infiltration to date.

Exophthalmic Goiter.—Bittorf has witnessed the development of typical exophthalmic goiter in a previously healthy person after a fright from the attack of a fierce dog. Glandular changes outside of the thyroid are frequently but not constantly found and they are not restricted to any special gland. He declares that when internal treatment fails, the earlier operative treatment is applied the better, except in the hyperthyroidism of puberty, acute exophthalmic goiter and ordinary goiter with a few hyperthyroidism symptoms. All these may recover spontaneously, or under roentgen-ray treatment.

Melchior analyzes 153 operative cases. In the last 115, the mortality was 12 per cent. and in all these fatal cases the prognosis had been grave from the first on account of complicating diabetes or other cause. No connection between the extent of the operation and the fatal outcome was apparent. Of the sixty-one cases traced to date, 80 per cent. have regained full earning capacity. In the twelve cases in which the benefit at first did not persist, the operation had been only partial hemithyroidectomy. The best results were always obtained in the cases with bilateral resection of the thyroid with ligation of the four main arteries.

Injury of the Thyroid.—A stab wound in three and a gunshot wound in seven cases were all given prompt operative treatment, with recovery of all but one senile patient.

Spontaneous Hemorrhage in a Goiter.—Schwoerer gives the details of eighteen cases of this kind among 2,500 patients with goiter at Karlsruhe since 1906. All but four were women or girls. The symptoms were from suffocation as the trachea was compressed by the hematoma, and 27.7 per cent. of the cases terminated fatally.

Operations for Helminthiasis.—In the first of Dieckmann's sixteen cases the hemorrhages from the bowel for weeks and the emaciation were explained by the constant finding of *Trichocephalus dispar* in the stools. The ileum and ascending colon were crowded with these parasites, completely filling a 2 liter dish as they were scooped out. The man, aged 46, did not long survive as thrombosis of the inferior vena cava and kidney veins continued to progress.

Tardy Ulceration After Radiotherapy.—Rahm states that since the introduction of deep roentgen-ray treatment, ulceration developing months afterward has become more common, while roentgen dermatitis and roentgen cancer belong to a past epoch. He has encountered in the last year twelve cases of tardy ulceration after deep exposures. In his cases the treatment had been for tuberculous processes in the majority, with four week intervals. It seemed to be immaterial whether the full skin dose had been given several times or only 50 or 60 per cent. of the skin dose. The interval before the ulceration developed ranged from six weeks to two and a half years. An intercurrent injury (croton oil, suppuration of the skin entailing maceration, application of iodin) had evidently aided in reducing the normal resistance of the tissues in a few of the cases. Early excision of the ulcerating area, with skin grafting, cured the condition in some. In two cases the ulcer healed after periarterial sympathectomy of the femoral or brachial artery, but the favorable result was not permanent. His conclusions are that with the full skin dose there should be an interval of at least three months before the next exposure, and of six months between the second and third. He now uses much smaller doses in treating tuberculous processes, not over 33 per cent. of the skin dose on the skin and for tuberculous peritonitis much less than this. For skin lesions he uses only 50 per cent. of the skin dose and at six weeks' intervals. More than eight exposures should not be given, or at least an interval of six months should be allowed before resumption. With these precautions he thinks there need be no fear of tardy injury.

Deutsche medizinische Wochenschrift, Leipzig

50: 455-486 (April 11) 1924

*Present Tendencies in Gynecology. W. Liepmann.—p. 455.
*Anatomy of Vasomotor Neuroses. M. Staemmler.—p. 457.
Simultaneous Hemolytic Crises in a Family. A. Beutler.—p. 459.
Phlorizin in Liver Disease. E. Schilling and K. Gröbel.—p. 460.
*Colloidal Gold Reaction. E. Bloch and H. Biberfeld.—p. 461.
*Paroxysmal Pains with Oxaluria. E. Bernheim.—p. 462.
Bile Duct Fistula and Psychosis. H. Boeminghaus.—p. 463.
*Diagnosis of Pernicious Malaria. B. A. Photakis.—p. 465.
Treatment of Wound Infections. Fessler.—p. 465.
Gonococcus Sepsis. E. Wiener.—p. 468.
Injury of Inferior Epigastric Artery. S. Cohn.—p. 469.
Intracranial Callus. Buttersack.—p. 469.
Sensitization of Paralyzed Nerves. E. Grünbaum.—p. 470.
Recent Progress in Psychiatry. Bostroem.—p. 471.
*Statistics on Weight of Infants. Klotz.—p. 473.
The Proposed Social Legislation in France. Prinzing.—p. 473.
*Immunization Against Diphtheria. H. Dold.—p. 477.
"Action of Lipoids in Serodiagnosis." F. Klopstock.—p. 477.

Present Tendencies of Gynecologic Treatment.—According to Liepmann's opinion, obstetric intervention before Semmelweis' discovery constituted rather an injury than a help. At present there are still many instances of unnecessary or harmful operations, such as the forceps applied without real indications, version with hypertonic uterus, or version or perforation of a dead fetus in the absence of indications on the part of the mother. Compression of the aorta in postpartum hemorrhage, painless delivery, and cesarean section in placenta praevia represent great progress. The importance of treatment of abortions is evident when we consider that there are about half a million abortions every year in Germany. The gynecologist should not be merely a physician of the genital organs. Recognition of the feminine pansexualism, realization of the universal tendency of women to transfer psychic anomalies into the sexual sphere and feel them as localized genital pain, and the discovery of psychanalysis are changing the whole gynecologic therapy. The local maltreatment of such patients with repeated cauterizations of the cervix and other local procedures aggravates their condition.

Anatomy of Vasomotor Neuroses.—Staemmler found degeneration and inflammatory changes in the cervical sympathetic ganglions in several cases of vasomotor neuroses such as Raynaud's disease, angina pectoris, Quincke's edema and hemiatrophy of the face.

Colloidal Gold Reaction.—Bloch and Biberfeld believe that the electric charge of the colloids of the cerebrospinal fluid causes the differences in the colloidal gold reaction in various diseases.

Paroxysmal Pains with Oxaluria.—Bernheim observed three neuropaths with recurring attacks resembling those of typical nephrolithiasis. No stones were found, but the urine contained a large amount of oxalates. The patients recovered after an appropriate diet.

Diagnosis of Pernicious Malaria.—Photakis considers a chocolate or blackish color of the bone marrow a very characteristic sign of acute malaria.

Statistics on Weight of Infants.—Klotz compares the weight of infants born in Lübeck in 1913, 1914, 1919 and 1920, using only first children, and the weights at the end of the fourth and twelfth weeks. The weights of the legitimate children were the same before and after the war. The illegitimate children, who were at a disadvantage even before the war, averaged still worse in 1920.

Toxin-Antitoxin Immunization Against Diphtheria.—Dold emphasizes the sometimes forgotten fact that Behring proposed in 1913 the toxin-antitoxin method of immunization against diphtheria.

Deutsche Zeitschrift für Chirurgie, Leipzig

184: 145-288 (March) 1924

Treatment of Echinococcus of the Liver. F. Partsch.—p. 145.
Intermittent Manifestations Resembling Coxitis, with Recurrent Periodical Vomiting (Acetonemia). D. Engel.—p. 181.
*Treatment with Own Blood. Vorschütz and Tenckhoff.—p. 200.
*Cancer Metastasis in the Parathyroids. Dieterich.—p. 208.
Surgical Anatomy of Blood Vessels of Liver. Melnikoff.—p. 216.

Treatment with Own Blood.—Vorschütz and Tenckhoff describe the extreme precautions taken in the St. Joseph Hospital, Elberfeld, to prevent patients taking cold during the first few hours after operation. In spite of this, in 17 per cent. of all operative cases lung manifestations, with fever, and in nearly 2 per cent. pneumonia occur. Since the middle of 1921, own blood treatment has been used in these cases with astonishing success. Intramuscular injections of from 30 to 80 c.c. of own blood were given as soon as high fever appeared. The symptoms are overcome with surprising rapidity if the treatment is given the first day of the illness. If the fever keeps up, they use it morning and evening of the following day, but can then count on defervescence.

Cancer Metastasis in the Parathyroid Glands.—Dieterich points out that in many cases of carcinoma, metastases in the parathyroids may be expected. Besides carcinoma of the breast and the bronchi, esophageal cancer is liable to involve the parathyroid glands. In one case tumor cells were found in the blood vessels of the parathyroids.

Klinische Wochenschrift, Berlin

3: 561-608 (April 1) 1924

*Action of Roentgen Rays on Growing Organisms. F. C. Geller.—p. 561.
*Transmission of Allergy in Bacilli. A. Schnabel.—p. 566.
*Small Intestine and Pernicious Anemia. R. Seyderhelm.—p. 568.
*Peptic Digestion. H. Kleinmann and K. Asada.—p. 572.
*Sugar Metabolism During Menstruation. R. Heilig.—p. 576.
*Treatment of Congenital Syphilis. K. Italiener.—p. 577.
Meinicke's Turbidity Reaction. W. Schultze.—p. 580.
*Extrahepatic Action of Insulin. E. Frank et al.—p. 581.
Pollen Anaphylaxis in Guinea-Pigs. M. E. Alexander.—p. 583.
*Lead Poisoning. S. Seelig.—p. 583.
Treatment of Cancer of Breast. H. Jarre.—p. 584.
Bilirubin Production and Jaundice. E. Bock.—p. 587.

Action of Roentgen Rays on Growing Organisms.—Geller produced in rabbits, 12 to 15 weeks old, a genital hypoplasia and inhibition of growth by exposing the pituitary gland to roentgen rays. Irradiation of the thighs inhibited the growth but had no influence on the sex organs. A weak irradiation of the ovary caused in young rabbits an increased development of the uterus, increased weight, and inhibition of the growth in length.

Transmission of Allergy in Bacilli.—Schnabel cultivated pneumococci in mediums containing ethylhydrocuprein, and colon bacilli with mercuric chlorid, until he obtained comparatively resistant strains. When adding filtrates from cultures of such strains to the original culture, it also became resistant to the agent.

Small Intestine and Pernicious Anemia.—Seyderhelm observed in ten pernicious anemia patients with an artificial anus, a putrefactive content of the duodenum. The bacilli corresponded also to the flora of the colon. The contents changed in four of these patients together with a marked improvement of the general condition. Closing of the anus was followed by a rapid impairment of the condition. He is convinced that the invasion of the constitutionally defective small intestine by the bacilli from the colon (where they are harmless) causes resorption of toxins, and the anemia.

Peptic Digestion.—Kleinmann and Asada describe their method of controlling the peptic digestion. Nephelometry was used for the determination of the protein concentration.

Sugar Metabolism During Menstruation.—Heilig gave women 100 gm. of saccharose on the first and second day of menstruation. The majority reacted with a marked hyperglycemia and subsequent glycosuria.

Treatment of Congenital Syphilis.—Italiener emphasizes the fact that infants require and tolerate relatively more arsphenamin than adults. She injects by the vein once a week in the first 2 years of age, 0.03 gm. neo-arsphenamin per kilogram of body weight. Intramuscular injections of 0.001 gm. of calomel per kilogram are also given (or daily inunction of 0.1 gm. mercurial ointment per kilogram). The treatment lasts for twelve weeks and is repeated three months later. Two more courses are necessary after the Wassermann reaction has become negative. She reports a negative Wassermann reaction after one course in one entire group of eighteen infants.

Extrahepatic Action of Insulin.—Frank, Nothmann and Wagner injected insulin into the femoral artery of rabbits. They found a marked difference between the sugar content of the blood of the femoral vein and the blood in the left ventricle. They estimate that the extremity took up 50 mg. of sugar out of 100 c.c. of the circulating blood (against 4 mg. without insulin).

Lead Poisoning.—Seelig reports a case of chronic lead polyneuritis in a cook who for two years had used constantly a spoon in which lead had been melted. She had 70 per cent. of eosinophils but no basophilic stippling. She recovered completely.

3: 609-656 (April 8) 1924

Multiple Sclerosis. E. Siemerling.—p. 609.
*Insulin and Metabolism. E. Gabbe.—p. 612.
*Contents of Fasting Stomach. W. Weitz and H. Fischer.—p. 613.
*Beginning Milk Secretion. I. Heckmann and E. Opitz.—p. 616.
*Action of Opium on Plain Muscle. G. Ganter.—p. 617.
Comparison of Insulin Preparations. F. Depisch et al.—p. 619.
*Raw Fruit Treatment. F. Mendel.—p. 624.
*Arsphenamin Injuries. A. M. v. Werthern.—p. 627.
*Action of Serum on Cell Respiration. S. M. Neuschlosz.—p. 628.
*Conservation of Blood Cells. H. Dold.—p. 629.

Fibroid of Pregnant Uterus in Umbilical Hernia. E. Riedel.—p. 630.
Paralysis of Cervical Sympathetic. E. Neter.—p. 631.
Radical Treatment of Fractures. M. v. Brunn.—p. 631.
*History of Smallpox Vaccination. H. A. Gins.—p. 634.
Bilirubin Formation and Jaundice. Bock.—p. 638. Conc'n.

Insulin and Metabolism.—Gabbe investigated the action of insulin on the respiratory metabolism in rats. The oxygen consumption was lowered, but this does not disprove an increased oxidation of carbohydrates because the respiratory quotient increased, especially before the onset of toxic symptoms. From the third to the fifth hour after the injection the quotient was lowered again. It is possible that this was not secondary, but due to a direct action of small doses of insulin. The oxygen consumption was higher in this period than before the experiment.

Contents of Fasting Stomach.—Weitz and Fischer studied the contents of the fasting stomach on themselves and on six healthy students. The stomach contents were aspirated with a duodenal tube immediately after waking up and again after a cold shower. In the first case there was only about 10 c.c. of a very slightly acid fluid, without any free hydrochloric acid. After the cold shower, the secretion increased and contained free hydrochloric acid. Some of these subjects had no feeling of hunger at the time.

The Beginning of Milk Secretion.—Opitz induced Heckmann to study the cause of the swelling and redness of the breasts on the third to the fifth day after delivery. It is present in 75 per cent. of the women, and causes discomfort in almost 14 per cent. of them. She found nothing to support the popular belief that it is the beginning of a stronger secretion of milk. It seems that the change of secretion of colostrum to that of milk has some connection with it. Slight increases in temperature up to 38 C. may occur.

Action of Opium on Plain Muscle.—Ganter found that an injection of the mixed alkaloids of opium increases the tonus of the intestine and colon in cats, but decreases the irritability. This accounts for its action, which resembles spastic constipation. Stimulation of the parasympathetic system, for example with pilocarpin, increased both the tonus and the irritability. Paralyzing the parasympathetic, as with atropin, decreased both. The alkaloids of opium act in the opposite way on tonus and irritability, and also diminish the blood supply. He believes that their point of action is in the unstriated muscles. One drop of a 1 per cent. morphin solution produces the typical accommodation spasm in an eye previously treated with atropin. This speaks for a direct action on Müller's muscle. The pupil does not change much because both the sphincter and the dilator are affected.

Systematic Fruit Courses in Treatment.—Mendel orders 1 kilogram of raw fruits (apples, pears, etc.) daily for three days instead of the Karell course of treatment. This fruit diet furnishes about 600 calories, and contains practically no sodium chlorid and little protein. He witnessed excellent results from it in broken compensation, nephritic and other edemas, hypertension, diabetic acidosis, obesity, and in attacks of gout. Raw fruits are more effectual than cooked fruits.

Arsphenamin Injuries.—Werthern describes a gangrene of the hand in a patient with beginning multiple sclerosis or encephalomyelitis, who had been treated with silverarsphenamin. No thrombosis was found. She attributes the gangrene to a spasm of the blood vessels, although a periarterial sympathectomy failed to help.

Action of Serum on Cell Respiration.—Neuschlosz studied the action of human serum on the in vitro reduction of metanitrobenzene by rats' muscles. Normal human serum did not influence it (except in pregnancy and cachectic conditions). Serum from patients with malignant tumors notably increased the reduction.

Conservation of Blood Cells.—Dold found that various blood cells and organ cells keep best in serum. Leukocytes take stains well even after eight days.

History of Smallpox Vaccination.—Gins has been examining some old reports on vaccination for the years 1810-1858. He found that the humanized lymph became weakened by the frequent passages from man to man, and protected only insufficiently. A highly virulent vaccine is necessary for protection.

Medizinische Klinik, Berlin

20: 475-510 (April 13) 1924

Economy in Treatment. Jadassohn.—p. 475.
*Sympathectomy in Angina Pectoris and Asthma. F. Glaser.—p. 477.
Vaccine Treatment of Abscesses in Axilla. G. Düttmann.—p. 479.
Periarteritic Contracted Kidney. L. Hess.—p. 480.
*Gastric and Duodenal Ulcers. K. Isaac-Krieger.—p. 482.
*Roentgen-Ray Treatment of Chilblains. F. Kroll.—p. 485.
Treatment with Sulpharsphenamin. J. Fabry.—p. 486.
Undernourishment in Mountain District. Ringelhan.—p. 487.
Mucus Secretion in Cervix of New-Born. W. Freundlich.—p. 489.
*Action of Rays in Body. F. Dessauer.—p. 490.
Practical Gynecology. E. Runge.—p. 494. Cont'n.
The Quartz Lamp in Pediatrics. B. Weltring.—p. 497.
The State and the Family. R. Fetscher.—p. 507.

Sympathectomy in Angina Pectoris and Asthma.—Glaser explains the results of sympathectomy in angina pectoris by the supposition that the sympathetic contains centripetal fibers. Resection of the depressor nerve in aortalgia acts in a similar way.

Surgical Treatment of Gastric and Duodenal Ulcers.—Without intending to warn against surgical treatment, Isaac-Krieger demonstrates with seventeen patients that the results of operative measures must not be overestimated. An ulcer is not merely a local affection, and the uncomplicated simple ulcers should be treated only internally.

Roentgen-Ray Treatment of Chilblains.—Kroll had good results with roentgen-ray treatment of seventeen patients with chilblains. The severe forms were especially well influenced.

Action of Rays in Body.—Dessauer explains the destructive action of roentgen rays as a change of their absorbed energy into molecular movement (heat). This increase in temperature is extremely minute if distributed over a large area. When it acts on the very small mass of a molecule, it is considerable. He calls this assumption the *punktwärme-hypothese.*

Mitteil. a. d. Grenzgeb. d. Med. und Chir., Jena

37: 145-262, 1924

*Resorption of Fat Through Biliary Epithelium. Kusnetzowsky.—p. 145.
*Periarterial Sympathectomy. J. Hohlbaum.—p. 163.
*Obliteration of Portal Vein. P. Kuhr.—p. 177.
After-Effects of Intraspinal Anesthesia. H. Strecker.—p. 190.
*Splenectomy in Hemophilia. E. Wild.—p. 201.
*Spastic Conditions in Intestines. W. Körte.—p. 211.
*Hemorrhages from Compression of Trunk. H. Kunz.—p. 235.
Bacteriology and Pathology of Surgical Affections of the Biliary Passages. W. Gundermann.—p. 243.

Resorption and Elimination of Fat by the Epithelium of the Biliary Passages.—Kusnetzowsky's experiments on rabbits confirmed the possibility of resorption only when the common bile duct had been ligated.

Periarterial Sympathectomy.—This communication from Payr's service gives a long list of pathologic conditions in which Leriche's technic has given remarkable results. Payr has even applied it recently in a case of growth disturbance following poliomyelitis. Hohlbaum states that it has completely failed in certain cases of vasomotor disturbances after injury of nerves, in some cases of malum perforans, and in Raynaud's disease, and it scarcely ever succeeds in treatment of arteriosclerosis. To date, no mishaps have occurred with it except that Matons alone has reported a case in which the artery tore a week after the sympathectomy on the external iliac. The patient died from the hemorrhage; the tear was 1 to 1.5 cm. wide. Seifert has observed two cases in which gangrene developed later or a bed-sore.

Obliteration of the Portal Vein.—Kuhr has encountered two cases of this condition, and compares the necropsy findings with those on record. Syphilis is a frequent factor.

Splenectomy in the Hemorrhagic Diathesis.—In Wild's case, spontaneous rupture of the spleen compelled splenectomy, and after this there were no further disturbances from the grave hemophilia diathesis. The patient was a boy of 15. This is the sixth case on record of the cure of hemophilia after splenectomy. Transfusion of blood and serum has only a comparatively brief action, but it may improve conditions enough to render splenectomy possible. When this displays any influence, the effect seems to be durable.

Enterospasm.—Körte gives the details of twenty-eight cases of ileus from spasm of the bowel. In five of the cases, the

spastic occlusion of the small intestine followed gastroenterostomy. The difficulty is to determine whether spasm or mechanical obstruction of the intestines is involved. An exploratory laparotomy is the only means to decide the question, as a rule.

Hemorrhages from Compression of the Trunk.—The previously healthy man had the trunk squeezed down by an elevator he was repairing. The severe and profuse stasis hemorrhages evidently developed inside the skull as well as in the skin. Kunz relieved by lumbar puncture all the symptoms indicating intracranial hypertension. The last trace of the paralysis had subsided by the end of the third month.

37: 263-384, 1924

*Duodenal Intubation in Typhoid. Brinkmann and Hage.—p. 263.
*Familial Hemolytic Jaundice. H. Hattesen.—p. 293.
The Intraperitoneal Pressure. H. Wildegans.—p. 308.
Pressure Relations in Cerebrospinal Fluid. E. Becher.—p. 325.
*Gonococcus Arthritis and Its Treatment. J. Borak.—p. 333.
Mediastinal Emphysema After Strumectomy. E. Gold.—p. 352.
Differential Diagnosis of Tumor and Gallstone. Neumäller.—p. 363.
Postoperative Obstruction of Intestine. K. Heudorfer.—p. 372.

Duodenal Intubation for Typhoid Carriers.—Brinkmann and Hage expatiate on the instructive findings with the duodenal tube after ingestion or injection of milk or peptone in bacilli carriers. They analyze the responses in sixty-one persons with active typhoid or paratyphoid or botulism, or in mere typhoid carriers. Typhoid bacilli were found in the blood during the incubation period in some cases, and this suggests possible entrance by way of the tonsils.

Familial Hemolytic Jaundice.—Hattesen brings down to date the history of the Röschmann family. The father and six of the members of his family had hemolytic jaundice, and splenectomy arrested it completely in all. Recent reexamination of this family showed that eleven of the twenty-six members of three generations of the family presented the familial taint. The splenectomy in the mother did not prevent the development of the hemolytic jaundice in the child born nine years later in one instance. In another case the child has been free from it to date although the splenectomy had been done during the pregnancy. Hemolytic jaundice can be transmitted by either sex to either sex. The results of splenectomy point to the spleen as the organ responsible for the hemolytic tendency and indirectly for the jaundice. The splenectomy removes at one stroke the greater part of the reticulo-endothelial apparatus.

Gonococcus Arthritis.—Borak emphasizes the importance of roentgenoscopy in the diagnosis and as guide for treatment in gonococcus arthritis. The arthritis may be only arthralgic, or there may be effusion, or hardening, or an actual phlegmon. The arthralgic type needs heat; the effusion needs puncture and a compressing dressing, while the indurative type calls for intra-articular injection of an anesthetic, and the phlegmonous type requires measures to combat the inflammation. All require movements in treatment (electricity, massage) with stasis hyperemia and vaccine therapy.

Monatsschrift für Geb. und Gynäkologie, Berlin

65: 321-378 (March) 1924

*Anemia from Pregnancy Intoxication. G. H. Schneider.—p. 321.
*Examination of the Pregnant from Without. E. Poeck.—p. 327.
*Abdominal Sterilization. Rosenstein.—p. 333.
*Hemolyzed Own Blood Given by Vein. Brünner and Breuer.—p. 341.
*Visual Impairment After Genital Hemorrhage. E. Puppel.—p. 351.
Pregnancy After Bilateral Adnexitis. J. Strecker.—p. 359.
Malignant Hemangio-Endothelioma in the Uterus. P. Schugt.—p. 363.
"Roentgen-Ray Injury of Offspring." Nürnberger.—p. 369.

Anemia from Pregnancy Intoxication.—The woman of 41 had two healthy children but developed hemolytic anemia of such a severe type at the third pregnancy that it had to be interrupted at the eighth month. From 40 per cent. hemoglobin and 1,920,000 erythrocytes the day of the artificial delivery, the figures rose to 40 and 2,100,000 the third day, and to 60 and 4,200,000 by the tenth day.

Examination of the Pregnant from Without.—Poeck states that in 200 pregnant women he was able to determine the position of the fetus by the fluctuation in 88 per cent. and by Ahlfeld's maneuver in 78 per cent., by palpation in 85 per cent., by the curve of the back in 90 per cent., and by the heart sounds in 94 per cent.

Interruption of the Pregnancy and Sterilization Through Abdominal Incision.—Rosenstein prefers the Liepmann method for sterilization by resecting and ligating the tubes, but he makes a point of turning the end of each tube back on itself, and applying the ligature near the tip of the turned-back portion, and including in the ligature the main portion of the tube. This shuts out both spermatozoa and ova, and reverses the course in case any should happen to get past the barrier.

Protein Therapy with Hemolyzed Own Blood.—Into a 20 c.c. syringe is drawn about 14 c.c. of distilled water, and then blood is aspirated into the syringe to its capacity. Without drawing the needle out of the vein, the blood and distilled water are mixed by twisting the syringe around its longitudinal axis. Then the mixture is reinjected. The products from the disintegration of the corpuscles seem to have an influence on certain organs, probably by way of the involuntary nervous system. The effect is much like that from other methods of parenteral protein therapy but the authors state that it surpasses them in the simplicity of the technic. They have applied it with good effect in adnexitis, ovarian hemorrhage, anemic conditions and pregnancy dermatoses, inflammatory infiltrates, furunculosis and joint effusions.

Impairment of Vision After Genital Hemorrhage.—Puppel adds two more to the 300 cases on record of blindness after excessive genital losses of blood. He warns that treatment must be applied without delay as the visual disturbances rapidly become irreparable unless the hemorrhages are arrested. He declares that the best means for this is the removal of the bleeding uterus, reinfusing the woman's own blood at need. There is no time to wait for the hemostatic effect of the roentgen rays, and the acute toxic action from the rays—the *roentgenkater*—might prove disastrous under the circumstances.

Münchener medizinische Wochenschrift, Munich

71: 423-458 (April 4) 1924

*Spastic Constipation. K. Hannemann.—p. 423.
*Anesthesia by Iontophoresis. F. Wirz.—p. 425.
Goat's Milk Injurious for Suckling Other Animals. Stadelmann.—p. 426.
Permeability of Skin for Light. F. Bernhard.—p. 427.
Swelling of Intestinal Lymph Follicles in Leptospira Infection. W. H. Hoffmann.—p. 428.
Adsorption of Mercuric Chlorid. Rakusin and Nesmejanow.—p. 429.
*Research on Stomach Contents. Bársony and v. Friedrich.—p. 430.
Position for Duodenoscopy. W. Sternberg.—p. 431.
*Exclusion of Two-Thirds of Small Intestine. N. Zeltner.—p. 432.
Coincidence of Epidemic Meningitis and Typhoid. Ernst.—p. 432.
"Molecular Pathology of Inflammation." H. Schade.—p. 433.
"Intra-Uterine Treatment." M. Nassauer.—p. 434.
"Castration Versus Extirpation of the Uterus." E. Opitz.—p. 435.
*Eclampsia Series Without a Death from the Eclampsia. Stroganoff.—p. 436.
Publications During the Russian Revolution. S. Weissenberg.—p. 437.
Erysipeloid. E. v. Redwitz.—p. 438.
To Reduce Expense of Prostheses. R. Pürckhauer.—p. 440.
Medicolegal Aspect of Sterilization of the Unfit. Schiedermair.—p. 443.

Differential Diagnosis of Spastic Constipation.—Hannemann presents arguments to show that a neurotic overexcitability is the primary factor in spastic constipation. Psychotherapy is the rational treatment, and has proved astonishingly successful in his hands. He has returned to the method of simple suggestion as published by Bernheim in 1892 and Forel in 1911, and only exceptionally resorts to hypnosis, catharsis or psychanalysis methods. In case of doubt as to the exact nature of the constipation, whether atony or spasm is the predominating factor, an adductor sign he describes turns the scale. He lifts with both hands one leg of the reclining patient, flexes the leg, and tries to abduct it, telling the patient to relax his muscles. There is no resistance in normal subjects, but almost invariably in the spastic constipation cases the adductors are contracted so that abduction is almost impossible. In some cases the foot of the other, the horizontal leg, spontaneously twists inward at the same time. This adductor sign indicates extreme motor excitability which includes the intestines, readily explaining the spastic constipation, and the benefit from treatment of the neurotic predisposition. The same method of treatment has proved remarkably successful in other con-

ditions in which neurotic-functional influences are at work, as for instance, Heyer's success in curing gastroptosis with psychotherapy. He describes a few typical cases, saying that spastic constipation is encountered in men almost as often as in women. The intensity of the adductor sign is a gage of the severity of the spastic condition in the bowels, and it subsides parallel to the subsidence of the clinical and roentgen-ray findings typical of spastic constipation.

Anesthesia by Iontophoresis.—Wirz states that the iontophoresis technic is particularly useful for children, as they shrink from needle pricks. It does away further with the danger of introducing germs with the needle, and the blood is expelled from the region more completely than with infiltration anesthesia. The main field for the iontophoresis method is in cosmetic operations, especially plastic operations, and in removing small lupus patches.

The Duodenal Tube for Examination of the Stomach.—Bársony noted that the spine divides the stomach into two parts as the subject lies on his back. It is possible to aspirate separately the contents of each of these parts, and study the fundus and the antrum contents separately.

Multiple Stenosis of Small Intestine.—Twelve strictures were found between the ileocecal valve and a point 200 cm. below the duodenum. This segment was excluded, leaving 2 m. of small intestine for function. The woman of 32 has been free from all disturbances during the months since.

Prophylactic Treatment of Eclampsia.—Stroganoff reiterates the harmlessness and efficacy of his morphin, chloral and chloroform method of treating eclampsia, saying that there have been only five deaths in his 246 cases of eclampsia, and two in this group of five fatal cases had been run over by a street car and one succumbed to intercurrent pneumonia. The other two were practically moribund when first seen. He insists that the prognosis is absolutely favorable in the nonneglected cases. The mortality of the children in the 246 cases was 13 per cent. but preceding operations, exposure to cold or premature delivery was responsible for 8 per cent. of this fetal mortality. His technic has been repeatedly described in THE JOURNAL as for instance Feb. 12, 1916, p. 530. His main reliance is on the chloral; he gives only from 0.02 to 0.04 gm. of morphin in the course of twenty-four hours.

Wiener Archiv für innere Medizin, Vienna

8: 1-184 (April 1) 1924

Sinus Arrhythmia After Correction of Auricular Fibrillation. K. F. Wenckebach and H. Winterberg.—p. 1.
*Insulin Treatment of Diabetes. W. Falta et al.—p. 13.
*Leukemic Leukolysis. P. Szilárd.—p. 33.
Roentgen-Ray Treatment of Leukemia. P. Szilárd.—p. 41.
*Ectoscopy. E. Weisz.—p. 49.
*Orthopercussion. I. Révai.—p. 103.
Pathogenesis of Nephritic Edema. M. Georgopoulos.—p. 115.
Parasystolia. D. Scherf.—p. 155.

Insulin Treatment of Diabetes.—Falta, Depisch and Högler had to use larger doses of insulin to check acidosis in patients who were eating more proteins than in those restricted to Petrén's diet. Diabetics with hypertension and hyperthyroidism were comparatively resistant to the action of insulin. They explain the insulin hypoglycemia as due to an increased avidity of the cells (including the liver) for glucose.

Leukemic Leukolysis.—Szilárd found a little more active destruction of normal leukocytes by the serum from leukemia patients than with normal serum. The leukemic cells were destroyed much more readily than normal cells by any serum used.

Ectoscopy.—Weisz describes in detail and illustrates his various methods for determining the outlines of the lungs and of localized peritoneal affections by simple visual inspection. Careful observation of a sniffing patient is sufficient to outline the borders of the lungs.

Orthopercussion.—Révai puts the terminal phalanx of a finger on the area of heart dulness and keeps the rest of the finger at an angle of about 45 degrees to the chest. Percussion on the finger continued proximally reveals an absolute dulness somewhere near the first interphalangeal joint. When the finger used as plessimeter reaches the margin of the heart, the sound becomes suddenly clear. He gives illustrations of the exact technic and comparison of the findings with this method and those of radiologic diagnosis.

Wiener klinische Wochenschrift, Vienna

37: 355-380 (April 10) 1924

Immunity and Tuberculosis. A. Kutschera-Aichbergen.—p. 355.
*Glycemia and Diabetes. J. Pal.—p. 356.
*Lactic Acid in Carcinosis. K. Glaessner.—p. 358.
*Treatment of Pernicious Anemia. J. Hickl and N. Jagic.—p. 359.
Blood Transfusion in Pernicious Anemia. Nather and Hickl.—p. 359.
*Prozone in Agglutination. H. Chiari and E. Löffler.—p. 361.
Resuscitation. R. Eisenmenger.—p. 364.
Pettenkofer's Letters. G. Sticker and I. Fischer.—p. 367. Conc'n.
Clinical Study of Diuresis. R. Fleckseder. Supplement, pp. 1-14.

Glycemia and Diabetes.—Pal believes that only free sugar can pass into the urine. As far as the diabetic hyperglycemia is due to a bound sugar, it does not cause glycosuria.

Lactic Acid in Carcinosis.—Glaessner found lactic acid in the urine from the majority of cancer patients and from cancer mice after intravenous injections of a glucose solution.

Treatment of Pernicious Anemia.—Hickl, Jagic and Nather recommend large weekly blood transfusions in pernicious anemia.

The Prozone in Agglutination.—Chiari and Löffler have been investigating the mechanism of the inhibition of agglutination of bacilli by strong concentrations of fresh serum which have an agglutinating action when diluted. Only the visible agglutination is inhibited; not the binding of the agglutinin to the germs. They confirm van Loghem's observations on the importance of the complement for the phenomenon.

37: 381-406 (April 17) 1924

Inflammation of the Labyrinth. E. Ruttin.—p. 381.
*The Blood After Operations. L. Schönbauer and G. Eichelter.—p. 384.
Constitutional Indications for Episiotomy. C. Bucura.—p. 387.
*Leukocytes in Lymphogranulomatosis. J. Weiss.—p. 389.
Pemphigoid Exanthem in Uremia. Königstein and Urbach.—p. 391.
*Irradiation of the Spleen in Menorrhagia. J. Sahler.—p. 392.
*Oculovesical Reflex. J. Pichler.—p. 396.
The Goiter Question. J. Wagner-Jauregg. Supplement, pp. 1-14.

The Blood After Operations.—Schönbauer and Eichelter consider the eosinophil count as a finer index of the condition than the count of any other blood cells. They use Dunger's diluting fluid (10 parts of a 1 per cent. aqueous solution of eosin; 10 parts of acetone, and distilled water to 100 parts) and the usual pipet for the leukocyte count.

Leukocytes in Lymphogranulomatosis.—Weiss considers a decrease in lymphocytes as most characteristic in lymphogranulomatosis. Neutrophils and eosinophils may increase in number. A leukocytosis exceeding 20,000 warrants the suspicion that the diagnosis was not correct.

Irradiation of the Spleen in Menorrhagia.—Sahler reports the results of irradiation of the spleen in 143 women with menorrhagia or metrorrhagia. The immediate results were good in 71 per cent.; the remote results only in 36 per cent. He confirms Werner's perfect results in his treatment of melena in three new-born infants.

Oculovesical Reflex.—Pichler observed in three patients with deep apoplectic coma, opening of the eyelids of one eye after pressure on the region of the bladder.

Zeitschrift für Tuberkulose, Leipzig

39: 401-466 (March) 1924

*Primary Tuberculosis in Children. Ghon and Winternitz.—p. 401.
*Effect of Phrenicotomy. E. Landé.—p. 418.
*The Results of Phrenicotomy. E. Lehmann.—p. 426.
Stains for Tubercle Bacilli. M. Gutstein.—p. 436.

Pulmonary Versus Extrapulmonary Tuberculosis in Children.—Ghon discusses the comparative frequency of these two modes of primary infection in infants and children.

Phrenicotomy and the Movements of the Diaphragm.—If immobilizing of one side of the diaphragm be advisable, Landé recommends instead of thoracoplasty the simpler exeresis of the phrenic nerve in the neck. She explains that if a piece that is long enough be removed, the intended paralysis of the diaphragm will cetainly result. The main indication for this procedure is in place of pneumothorax when this latter cannot be realized on account of adhesion of the layers of the pleura.

The Results of Phrenicotomy.—Lehmann states, after reviewing ten cases of phrenic exeresis, that it may prove useful as an adjuvant, but, alone, it has only a modest bearing on the improvement of progressive pulmonary tuberculosis.

Zeitschrift für Urologie, Leipzig

18: 193-256, 1924

*Purpura of the Upper Urinary Tract. G. Praetorius.—p. 193.
Malformations of Renal Pelvis. S. Werboff.—p. 197.
Trabeculae in Bladder. J. Alksnis.—p. 205.
Multiple Primary Cancers. N. Taschiro.—p. 209.
Physical and Chemical Research on the Kidneys. Armbruster.—p. 212.

Purpura of the Urinary Tract.—Praetorius reports three cases of purpura occurring in the urinary tract, especially in its upper segment. This form, heretofore unknown, can be diagnosed by the clinical triad of acute fever, hematuria and ureter colic. It must be differentiated from calculi, especially if the bladder is also involved. The persistence of the fever with absence of pus in the urine is instructive.

Casopis lekaruv ceskych, Prague

63: 581-616 (April 12) 1924

*Primary Tumors of Fallopian Tube. G. Müller.—p. 581.
*Perimyelography with Iodized Oil. B. K. Prusik and L. Volicer.—p. 586.
Ureter Calculi. J. Rejsek.—p. 590. Cont'd.
*Chemotherapy of Rhinoscleroma. V. Jindra.—p. 598. Conc'n.

Primary Tumors of Fallopian Tube.—Müller publishes photomicrograms of four additional cases of primary cancer of the fallopian tube. One of them was a myxofibrosarcoma.

Perimyelography with Iodized Oil.—Prusik and Volicer report their results in the examination of six patients with injections of iodized oil into the subarachnoid space. Aside from the by-effects mentioned by the French authors, they observed a slight increase in temperature (rarely over 38 C.). Nevertheless, they consider the method as extremely valuable for topical diagnosis.

Chemotherapy of Rhinoscleroma.—Jindra had fair results in treatment of rhinoscleroma with bismuth; fifteen or more injections are necessary.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

1: 1621-1724 (April 12) 1924

*The Fever at Onset of Malaria. P. C. Korteweg.—p. 1622.
*Acute Bulbar Paralysis. S. Koster.—p. 1639.
*Unreliability of Urine Findings Under Insulin. W. Hoogslag.—p. 1649.
Vaccine Treatment by Ponndorf Method. J. Dekker.—p. 1651.
Hydatidiform Mole. R. Remmelts.—p. 1654.

The First Onset of Malaria.—Korteweg has had an unprecedented opportunity to study the onset of malaria as it was observed in sixty-six patients with general paralysis given treatment by inoculation with malaria. The malaria parasite, *Plasmodium vivax*, was never found in the blood until the fifth day, and the interval was longer than this in some, up to the twenty-first day. In thirty-six of the cases there was a continuous fever at first, with slight remissions for a few days, until the typical peaks developed. With previous infection with malaria, the peaks started from the first.

Acute Bulbar Paralysis.—In the first of Koster's two cases the gradual onset, the low blood pressure and the absence of any cause for embolism confirmed the assumption of endarteritic thrombosis. The symptoms localized it in the basilar artery. The patient was a man, aged 30, who had contracted syphilis two years before. Koster injected 0.9 gm. of neo-arsphenamin in two weeks, followed by mercurial treatment and bismuth. The tetraplegia was of ten weeks' standing, and the Wassermann test was repeatedly negative. The speech improved after the first injection and complete recovery soon followed. The special clinical picture with thrombosis of the basilar artery is described, and the necropsy findings in a second case of the kind, with syphilis of six years' standing. Treatment of the primary syphilis had been vigorous and prolonged in both cases.

Unreliability of Urine Findings During Insulin Treatment.—Hoogslag warns that the threshold for sugar may be suddenly lowered in diabetics, from some unknown factor, and the sugar content of the urine may thus be high while the blood sugar level may have dropped abnormally low under the influence of insulin or other cause. To give more insulin on the basis of the glycosuria alone is dangerous.

1: 1725-1836 (April 19) 1924

*Six Puzzling Internal Cases. Wortman and Goudriaan.—p. 1726.
*Ineffective Antiseptics. M. A. van Herwerden.—p. 1740.
Action of Iron in Anemia. Roessingh.—p. 1743.
*Treatment of General Paralysis. A. Stärcke.—p. 1751.
*Fistula Between Stomach and Colon. J. F. O. Huese.—p. 1754.
Congenital Lymphangioma with Secondary Giantism. Willemse.—p. 1755.
The Transmissible Diseases Bill. P. Muntendam.—p. 1769.
A Netherlands Physician in China. J. W. Schotman.—p. 1777. Conc'n.
Disability from Accident in Preexisting Disease. Brockx.—p. 1787.
Carbon Monoxid Poisoning. Kranenburg.—p. 1794.

Some Puzzling Internal Cases.—In one of the six cases described, a previously healthy woman of 36 suddenly developed coma for which all the usual causes could be excluded. Necropsy revealed coagulated blood in the lateral ventricle.

Organic Binding of Antiseptics.—Van Herwerden found that even a 2 per cent. mercuric chlorid agar-banana culture medium had no appreciable antiseptic action on the large fly larvae and yeasts tested, while there was no growth on the same culture medium when the banana was omitted.

Treatment of General Paralysis.—Stärcke attacks the disease by inducing fever and then, at the time of the fever, starts vigorous treatment with neo-arsphenamin. He assumes that the fever renders the glia filter permeable, and this allows the arsphenamin, and possibly also the natural defensive forces, to reach the brain. He induces the fever by an intramuscular injection of boiled milk in the morning, massaging the region, or having the patient run for a few minutes, to promote absorption. By evening the temperature rises to 38.5 or 40 C., and when it is at its height, he injects from 0.6 to 0.9 gm. of neo-arsphenamin. This sends the temperature still higher; if it goes above 40 it is reduced with a cold pack. This treatment is repeated weekly, increasing the amount of milk to insure that the temperature goes to 39 C. at least. He never witnessed any signs of anaphylaxis, and insists that the improvement has been at least fully equal to that realized with malaria treatment.

Spontaneous Healing of Gastro-Intestinal Fistula.—The fistula was seen very plainly with the roentgen rays after a barium contrast suspension had been swallowed. The young woman was so weak from the vomiting and diarrhea that the operation was postponed for a day or two, during which she began to improve, and recovered completely. No trace of the fistula was apparent two weeks later. Huese remarks that the metal salt probably contributed to the healing, even if it did not actually plug the opening.

Acta Medica Scandinavica, Stockholm

60: 95-290, 1924

Vaccine Treatment of Typhoid and Paratyphoid. V. Bie.—p. 95.
Proteolysins in the Blood of the Insane. A. Bisgaard.—p. 120.
The Arterial Pulse in Pneumonia. F. Leegaard.—p. 136.
*Surgical Treatment of Pernicious Anemia. Walterhöfer and Schramm.—p. 196.
*Metabolism in Psychoses. J. Norvig.—p. 211.
Anatomic Lesions in Herpes Zoster. S. Hesser.—p. 278.

Surgical Treatment of Pernicious Anemia.—Walterhöfer and Schramm explain that in eight cases of pernicious anemia they have observed improvement after removal of the marrow of one or more of the long bones (tibia). Since the regenerative stimulus enhances the reacting faculty of the organism to internal medication, this latter should be combined with surgical treatment even when the disease has proved refractory to conservative medication. It has been established that the removal of bone marrow is followed by a spontaneous regeneration of normally functioning marrow.

Metabolic Anomalies in Psychoses.—After recording the chemical findings of the metabolism in dementia praecox, general paralysis, Alzheimer's atrophic sclerosis and epilepsy, Norvig states that in true epilepsy there is an increased ammonia percentage in the blood before the seizure and diminished urea content of both blood and urine. The condition seems to be traceable to a parathyroid insufficiency, since three patients have shown marked improvement under injections of thyroid and parathyroid extracts, 0.2 c.c. and 0.8 c.c. daily.